

6-20-96

US EPA RECORDS CENTER REGION 5

DRP-8J

Mr. Ron Wilkins
 Compliance Manager
 Heritage Environmental Services, Inc.
 15330 Canal Bank Road
 P.O. Box 337
 Lemont, Illinois 60439-0337



Re: Class 2 Permit Modification Request
 Carbamate Production Wastes
 Heritage Environmental Services, Inc.
 ILD085349264

Dear Mr. Wilkins:

We have completed our review of the additional information you submitted on June 7, 1996, regarding your Class 2 Resource Conservation and Recovery Act (RCRA) permit modification request of February 1, 1996, to add the newly regulated Carbamate Production Wastes and related wastes to Heritage's RCRA permit. Our review of your submissions indicates that Heritage's revised Part A permit application has now been signed by the land owner as required by 40 CFR 270.10.

The United States Environmental Protection Agency (U.S. EPA) hereby approves the requested modification of the Federal portion of the RCRA permit for the above-referenced facility. Accordingly, the enclosed revised pages (cover, index, and pages 26 through 28) will replace the corresponding pages in the original permit. Attachment F should be added to the permit. As no other changes have been requested, other than the addition of new wastes and the address change, all other conditions in the original permit continue to apply. This permit modification request is effective as of the date of this letter.

If you have any questions regarding this matter, please contact Juana Rojo of my staff, at (312) 886-0990.

Sincerely,

Karl E. Bremer, Chief
 Waste Management Branch

Enclosures

cc: Jerry Kuhn, Illinois EPA

WASTE MANAGEMENT BRANCH

SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY
	<i>Kim 6-20-96</i>				
TYPIST/ AUTHOR	IL/IN/MI SECTION CHIEF	MN/OH/WI SECTION CHIEF	POL. PREV. & SPEC. INTIV SEC. CHIEF	WMB BRANCH CHIEF	WPTD DIVISION DIRECTOR
<i>PER 6-20-96</i>	<i>GRA 6-20-96</i>				

JUL 10 1996

Mr. Ron Wilkins
Compliance Manager
Heritage Environmental Services, Inc.
15330 Canal Bank Road
Lemont, Illinois 60439-0337

DRP-8J

Re: Class 2 Permit Modification Request
Carbamate Production Wastes
Heritage Environmental Services, Inc.
ILD085349264

Dear Mr. Wilkins:

We have completed our review of the additional information you submitted on June 7, 1996, regarding your Class 2 Resource Conservation and Recovery Act (RCRA) permit modification request of February 1, 1996, to add the newly regulated Carbamate Production Wastes and related wastes to Heritage's RCRA permit. Our review of your submissions indicates that Heritage's revised Part A permit application has now been signed by the land owner as required by 40 CFR 270.10.

The United States Environmental Protection Agency (U.S. EPA) hereby approves the requested modification of the Federal portion of the RCRA permit for the above-referenced facility. Accordingly, the enclosed revised pages (cover, index, and pages 26 through 28) will replace the corresponding pages in the original permit. Attachment F (4 new pages listing the Carbamate Production Wastes and additional related compounds) should be added to the permit. As no other changes have been requested other than the addition of new wastes and the address change, all other conditions in the original permit continue to apply. This permit modification request is effective as of the date of this letter.

If you have any questions regarding this matter, please contact Juana Rojo of my staff, at (312) 886-0990.

Sincerely,
ORIGINAL SIGNED BY
KARL E. BREMER
Karl E. Bremer, Chief
Waste Management Branch

Enclosures

cc: Jerry Kuhn, Illinois EPA

WASTE MANAGEMENT BRANCH

SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY	SECRETARY
	<i>[Signature]</i>			<i>LS 7/3/96</i>	
TYPIST/ AUTHOR	IL/IN/MI SECTION CHIEF	MN/OH/WI SECTION CHIEF	POL. PREV. & SPEC. INTIV SEC. CHIEF	WMB BRANCH CHIEF	WPTD DIVISION DIRECTOR
<i>[Signature]</i> 7-03-96	<i>GRA for</i> <i>AL</i> 7-03-96			<i>KSO</i> 7/7/96	

MAY 07 1996



DRP-8J

CERTIFIED MAIL # P 993 304 506
RETURN RECEIPT REQUESTED

Mr. Ron Wilkins
Compliance Manager
Heritage Environmental Services, Inc.
15330 Canal Bank Road
P.O. Box 337
Lemont, Illinois 60439-0337

Re: Class 2 Permit Modification Request
Carbamate Production Wastes
Heritage Environmental Services, Inc.
ILD085349264

Dear Mr. Wilkins:

We have reviewed your Class 2 Resource Conservation and Recovery Act (RCRA) permit modification request of February 1, 1996, to add the newly regulated Carbamate Production Wastes, and the additional information submitted on April 24, 1996, to demonstrate compliance with the notification and public participation requirements of Title 40 Code of Federal Regulations (40 CFR), Section 270.42(b)(2). Our review of your submissions indicate that Heritage's revised Part A permit application was not signed by the land owner as required by CFR 270.10.

The United States Environmental Protection Agency (U.S. EPA) is extending the decision period for Heritage's permit modification request for 30 days after receipt of this letter. The reason for this extension is to allow Heritage additional time to obtain the required land owner's signature.

Please note that we acknowledge the recent assignment of an address to the facility. However, the Heritage request for removal of the three waste codes discussed in your letter (P107, U104, U232) must be processed by the Illinois EPA.

If you have any questions regarding this matter, please contact Juana Rojo of my staff, at (312) 886-0990.

Sincerely,

Gale R. Krush

for

Hak K. Cho, Chief
Illinois/Indiana/Michigan Permits Section

cc: Jerry Kuhn, Illinois EPA

RCRA PERMITS	TYP.	AUTH.	IL. CHIEF	IN. CHIEF	MI. CHIEF	
INIT. DATE		<i>JER</i> 5-07-96	<i>GRIP</i> H.C. 5-7-96			

Jim
5-7-96



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:
DRP-8J

MAY 07 1996

CERTIFIED MAIL # P 993 304 506
RETURN RECEIPT REQUESTED

Mr. Ron Wilkins
Compliance Manager
Heritage Environmental Services, Inc.
15330 Canal Bank Road
P.O. Box 337
Lemont, Illinois 60439-0337

Re: Class 2 Permit Modification Request
Carbamate Production Wastes
Heritage Environmental Services, Inc.
ILD085349264

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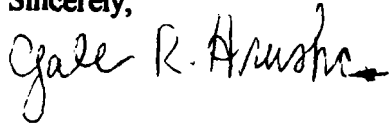
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Please note that we acknowledge the recent assignment of an address to the facility. However, the Heritage request for removal of the three waste codes discussed in your letter (P107, U104, U232) must be processed by the Illinois EPA.



If you have any questions regarding this matter, please contact Juana Rojo of my staff, at (312) 886-0990.

Sincerely,



for Hak K. Cho, Chief
Illinois/Indiana/Michigan Permits Section

cc: Jerry Kuhn, Illinois EPA

HERITAGE ENVIRONMENTAL SERVICES, INC.



P.O. Box 337
Lemont, IL 60439-0337
Phone: 708/739-1151
FAX: 708/739-9491

April 24, 1996

Ms. Juana Rojo
U.S. Environmental Protection Agency Region 5
Waste, Pesticides & Toxics Division
Waste Management Branch
Illinois, Indiana, Michigan Section
77 West Jackson Boulevard
Chicago, IL 60604
Mail Code: DRP-8J

**Re: Class 2 Permit Modification IL296-1
Addition of Hazardous Waste Codes
Heritage Environmental Services, Inc.
Lemont, Illinois USEPA ID No: ILD085349264**

Dear Ms. Rojo:

Enclosed is a copy of the public notice as it was published in the Lemont Metropolitan. The Class 2 permit modification to append the waste codes handled at the Heritage Environmental Services, Inc. (Heritage) Lemont Treatment Center was submitted to USEPA and IEPA on February 1, 1996. The notice was published on February 6, 1996, within seven (7) days after the date of submission of the modification request as required by 40 CFR 270.42(b)(2). The notification includes the following as prescribed in 40 CFR 270.42(b)(2)(i) through (vi).

1. Announcement of a 60 day comment period, and a name and address of an Agency contact to whom comments must be sent;
2. Announcement of the date, time, and place for a public meeting on the modification request, in accordance with 40 CFR 270.42(b)(4);
3. Name and telephone number of the permittee's contact person;
4. Name and telephone number of the Agency contact person;
5. Location where copies of the modification request and any supporting documents can be viewed and copied: and
6. The following statement: "The permittee's compliance history during the life of the permit being modified is available from the Agency contact person."

RECEIVED

OFFICE OF RCRA
WASTE MANAGEMENT DIVISION
EPA REGION 5





A copy of the public notice was mailed to the persons on the facility mailing list on February 6, 1996. Enclosed is a copy of that notification, along with a copy of the mailing list. Please note that the local governmental units are on the facility mailing list.

This submittal completes the requirements of 40 CFR 270.42(b)(2) for the referenced Class 2 permit modification appending the waste codes handled at Heritage's Lemont facility. Please contact the undersigned at (708)739-1151 should you have any questions.

Sincerely,

Heritage Environmental Services, Inc.

Ron Wilkins CHMM
Compliance Manager

cc: Mark Schollenberger





PUBLIC NOTICE

Heritage Environmental Services, Inc. (Heritage) is hereby giving notice of a Class 2 permit modification request submitted to the United States Environmental Protection Agency and the Illinois Environmental Protection Agency on February 1, 1996 for modification of the Resource Conservation and Recovery Act (RCRA) permit for its industrial waste storage and treatment facility located at 15330 Canal Bank Road, Lemont, Illinois 60439. The requested modification will append the list of waste codes for materials handled at the facility. This notice is given in accordance with 40 CFR 270.42(b)(2).

Heritage is inviting public comment on the requested modification. The modification request is available for public review and photocopying at the Lemont Public Library located at 810 Porter, Lemont, Illinois. The sixty (60) day comment period begins February 16, 1996 and ends April 16, 1996. All comments must be postmarked by April 16, 1996 and sent to either the USEPA (primary contact) or the IEPA (secondary contact) below:

Ms. Juana Rojo
USEPA Region 5
Waste, Pesticides & Toxics Division
Waste Management Branch
Illinois, Indiana, Michigan Section
77 West Jackson Boulevard
Chicago, IL 60604
Mail Code: DRP-8J

Mr. Mark Schollenberger
Illinois Environmental Protection Agency
Division of Land Pollution Control, Bureau of Land
2200 Churchill Road
Springfield, Illinois 62794-9276

Ms. Rojo and Mr. Schollenberger are available by telephone at (312)886-0990 and (217)524-3307 respectively, weekdays during business hours. Heritage's contact person for this procedure is Mr. Ron Wilkins, available by telephone at (708)739-1151, Monday through Friday, 8:00 am to 5:00 pm.

Interested parties are hereby also invited to participate in a public meeting to be held on February 21, 1996 at 2:00 pm at the Lemont Public Library located at 801 Porter, Lemont, Illinois.

Heritage's compliance history during the life of the permit being modified is available from the USEPA or IEPA contact person identified above.



Dorothy Bratko, agent of Press Publications Inc.. HEREBY CERTIFIES that she is the Classified Advertising manager of the Lemont Metropolitan

at Said Lemont Metropolitan

is a secular newspaper and has been published weekly in the Village of Lemont

County of Cook and State of Illinois, continuously for more than one year prior to, on and since the date of the first publication of the notice hereinafter referred to and is of general circulation throughout the county and the State.

That said manager hereby certifies that the paper is a newspaper as defined in Section 5 of Chapter 100 of the Illinois Revised Statutes (1961).

That a notice, of which the annexed printed slip is a true copy was published one times in said Lemont Metropolitan

namely, once each week for one successive weeks and that the first publication of said notice as aforesaid was made in said newspaper.

dated and published on the 8 th day of February A.D. 1996

and the last publication thereof was made in said newspaper.

dated and published on the 8 th day of February A.D. 1996

IN WITNESS WHEREOF, the undersigned has caused this

certificate to be signed this 8 th day of February A.D. 1996

Dorothy Bratko.

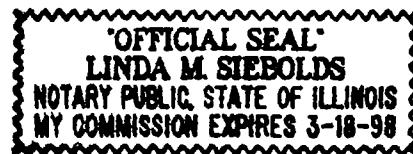
Classified Advertising Manager of Press Publications

Dorothy Bratko

Publication Fee \$81.00

Reference Number #1898

mrg



Linda M. Siebolds

**LEGAL NOTICE
PUBLIC NOTICE**

Heritage Environmental Services, Inc. (Heritage) is hereby given notice of a Class 2 permit modification request submitted to the United States Environmental Protection Agency and the Illinois Environmental Protection Agency on February 1, 1996 for modification of the Resource Conservation and Recovery Act (RCRA) permit for its industrial waste storage and treatment facility located at 15330 Canal Bank Road, Lemont, Illinois 60439. The requested modification will append the list of waste codes for materials handled at the facility. This notice is given in accordance with 40 CFR 270.42(b)(2).

Heritage is inviting public comment on the requested modification. The modification request is available for public review and photocopying at the Lemont Public Library located at 810 Porter, Lemont, Illinois. The sixty (60) day comment period begins February 16, 1996 and ends April 16, 1996. All comments must be postmarked by April 16, 1996 and sent to either the USEPA (primary contact) or the IEPA (secondary contact) below:

Ms. Juana Rojo
USEPA Region 5
Waste, Pesticides & Toxics Division
Waste Management Branch
11000 Indiana, Michigan Section
77 West Jackson Boulevard
Chicago, IL 60604
Mail Code: DRP-6J

Mr. Mark Schollenberger
Illinois Environmental Protection Agency
Division of Land Pollution Control, Bureau of Land
2200 Churchill Road
Springfield, Illinois 62794-9276

Ms. Rojo and Mr. Schollenberger are available by telephone at (312) 896-0960 and (217) 524-3307 respectively, weekdays during business hours. Heritage's contact person for this procedure is Mr. Ron Wilkins, available by telephone at (708) 739-1151, Monday through Friday, 8:00 am to 5:00 pm.

Interested parties are hereby also invited to participate in a public meeting to be held on February 21, 1996 at 2:00 pm at the Lemont Public Library located at 801 Porter, Lemont, Illinois.

Heritage's compliance history during the life of the permit being modified is available from the USEPA or IEPA contact person identified above.

February 8, 1996
Lemont Metropolitan 1996

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- ☐ Addressee's Address
- ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
HONORABLE LARRY WENNLUND
1234 N. CEDAR ROAD
NEW LENOX, IL 60451

4a. Article Number
Z 773 426 296

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
2-9-96

5. Signature (Addressee)
Paula Hebre

6. Signature (Agent)

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, December 1991 ★U.S. GPO: 1993-352-714 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
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I also wish to receive the following services (for an extra fee):

- ☐ Addressee's Address
- ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
CHARLENE SMOLLEN, CITY CLERK
418 MAIN STREET
LEMONT, IL 60439

4a. Article Number
Z 773 426 297

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
2/8/96

5. Signature (Addressee)
Charlene Smollen

6. Signature (Agent)

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, December 1991 ★U.S. GPO: 1993-352-714 **DOMESTIC RETURN RECEIPT**

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I also wish to receive the following services (for an extra fee):

- ☐ Addressee's Address
- ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
CAROL PENNING, VILLAGE CLERK
375 W. BRIARCLIFF
BOLINGBROOK, IL 60440

4a. Article Number
Z 773 426 299

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
2/8/96

5. Signature (Addressee)
Carol Penning

6. Signature (Agent)

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, December 1991 ★U.S. GPO: 1993-352-714 **DOMESTIC RETURN RECEIPT**

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SENDER:

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I also wish to receive the following services (for an extra fee):

- ☐ Addressee's Address
- ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
JOANNE COLEMAN, CITY CLERK
1702 PLAINFIELD ROAD
DARIEN, IL 60559

4a. Article Number
Z 773 426 300

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
2/8

5. Signature (Addressee)
Joanne Coleman

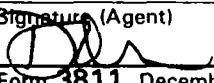
6. Signature (Agent)

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, December 1991 ★U.S. GPO: 1993-352-714 **DOMESTIC RETURN RECEIPT**

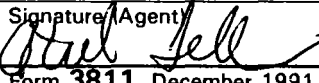
Thank you for using Return Receipt Service.

Is your RETURN ADDRESS completed on the reverse side?

SENDER: <ul style="list-style-type: none">• Complete items 1 and/or 2 for additional services.• Complete items 3, and 4a & b.• Print your name and address on the reverse of this form so that we can return this card to you.• Attach this form to the front of the mailpiece, or on the back if space does not permit.• Write "Return Receipt Requested" on the mailpiece below the article number.• The Return Receipt will show to whom the article was delivered and the date delivered.		I also wish to receive the following services (for an extra fee): 1. <input type="checkbox"/> Addressee's Address 2. <input type="checkbox"/> Restricted Delivery Consult postmaster for fee.	
3. Article Addressed to: JOHN H. STROGER COOK COUNTY BOARD PRES. 118 N. CLARK ST. RM#567 CHICAGO, IL 60602		4a. Article Number Z 773 426 292	
		4b. Service Type <input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail <input type="checkbox"/> Return Receipt for Merchandise	
		7. Date of Delivery FEB 13 1990	
5. Signature (Addressee)		8. Addressee's Address (Only if requested and fee is paid)	
6. Signature (Agent) 			
PS Form 3811, December 1991 ☆U.S. GPO: 1993-352-714 DOMESTIC RETURN RECEIPT			

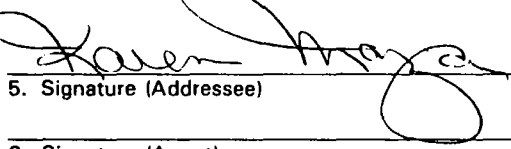
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3. Article Addressed to: CECIL LUE-HING D.SC., P.E. DIR. RESEARCH & DEVELOPMENT METROPOLITAN WATER RECLAMA. DIST. OF GREATER CHICAGO 100 EAST ERIE ST. CHICAGO, IL 60611		4a. Article Number Z 773 426 294	
		4b. Service Type <input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail <input type="checkbox"/> Return Receipt for Merchandise	
		7. Date of Delivery 2/9/96	
5. Signature (Addressee)		8. Addressee's Address (Only if requested and fee is paid)	
6. Signature (Agent) 			
PS Form 3811, December 1991 ☆U.S. GPO: 1993-352-714 DOMESTIC RETURN RECEIPT			

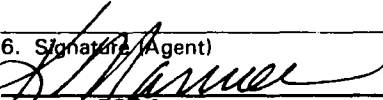
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3. Article Addressed to: REV. GLENN BERGMARK LEMONT ENV. ADVISORY COMM. 418 MAIN ST. LEMONT, IL 60439		4a. Article Number Z 773 426 293	
		4b. Service Type <input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail <input type="checkbox"/> Return Receipt for Merchandise	
		7. Date of Delivery 2/8/96	
5. Signature (Addressee) 		8. Addressee's Address (Only if requested and fee is paid)	
6. Signature (Agent)			
PS Form 3811, December 1991 ☆U.S. GPO: 1993-352-714 DOMESTIC RETURN RECEIPT			

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3. Article Addressed to: HONORABLE WM. F. MAHAR, JR. 14700 RAVINIA ORLAND PARK, IL 60462		4a. Article Number Z 773 426 295	
		4b. Service Type <input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail <input type="checkbox"/> Return Receipt for Merchandise	
		7. Date of Delivery 2-6-96	
5. Signature (Addressee) 		8. Addressee's Address (Only if requested and fee is paid)	
6. Signature (Agent)			
PS Form 3811, December 1991 ☆U.S. GPO: 1993-352-714 DOMESTIC RETURN RECEIPT			

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I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address

2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

EILEEN NYSTROM, VILLAGE CLERK
1900 W. 75TH STREET
WOODRIDGE, IL 60517

4a. Article Number

Z 773 426 301

4b. Service Type

☐ Registered

☐ Insured

☒ Certified

☐ COD

☐ Express Mail

☐ Return Receipt for Merchandise

7. Date of Delivery

2-9

5. Signature (Addressee)

6. Signature (Agent)



8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, December 1991

*U.S. GPO: 1993-352-714

DOMESTIC RETURN RECEIPT

Thank you for using Return Receipt Service.

HERITAGE ENVIRONMENTAL SERVICES, INC.



P.O. Box 337
Lemont, IL 60439-0337
Phone: 708/739-1151
FAX: 708/739-9491

February 1, 1996

RECEIVED
FEB 05 1996

OFFICE OF RCRA
WASTE MANAGEMENT DIVISION
EPA, REGION V

Ms. Juana Rojo
U.S. Environmental Protection Agency Region 5
Waste, Pesticides & Toxics Division
Waste Management Branch
Illinois, Indiana, Michigan Section
77 West Jackson Boulevard
Chicago, IL 60604
Mail Code: DRP-8J

Re: Class 2 Permit Modification IL296-1
Addition of Hazardous Waste Codes
Heritage Environmental Services, Inc.
Lemont, Illinois
USEPA ID No: ILD085349264

Dear Ms. Rojo:

The purpose of this letter is to submit a Class 2 permit modification for Heritage Environmental Services, Inc. (Heritage) Lemont Treatment Center. This request is a result of the listing of carbamate wastes generated during the production of carbamate chemicals and the listing of commercial chemical products containing carbamate/carbamate derivatives that are hazardous when discarded. As is customary with new waste listings, a permittee (i.e. Heritage) is required to submit a Class 1 permit modification followed by a Class 2 permit modification within 180 days of the effective date of the listing to manage the new waste numbers. Heritage submitted a Class 1 permit modification on August 4, 1995. This Class 2 permit modification addresses three items: addition of the new waste code listings; removal of three waste codes which are obsolete (P107, U104, U232); and the recent assignment of an address to the facility.

This Class 2 permit modification includes addition of the following hazardous waste numbers:

Hazardous waste from specific sources listed in 40 CFR 261.32:

K156, K157, K158, K159, K160, and K161; and,

Discarded commercial chemical products, off-specification species, container residues, and spill residues thereof listed in 40 CFR 261.33:

P127, P128, P185, P188, P189, P190, P191, P192, P194, P196, P197, P198, P199,
P201, P202, P203, P204, P205, U271, U277, U278, U279, U280, U364, U365,
U366, U367, U372, U373, U375, U376, U377, U378, U379, U381, U382, U383,
U384, U385, U386, U387, U389, U390, U391, U392, U393, U394, U395, U396,
U400, U401, U402, U403, U404, U407, U409, U410, and U411.





February 1, 1996

Page No. 2

Heritage plans to manage these wastes in accordance with the existing permit conditions and management practices. This includes on-site storage, treatment, blending, lab depack, third party disposal, and combinations thereof. Heritage requests that our Part B permit be modified in such a manner that we may store and/or treat these materials in tanks in addition to storage in containers.

The modified pages of the State permit are enclosed as part of this Class 2 permit modification. Included are additional pages to be added to Attachment A of the State permit. The Part A has also been modified to include the new waste numbers as well as to reflect the recently assigned address. Sections XV (Map), XVI (Facility Drawing), and XVII (Photographs) of the Part A have not been modified and therefore are not included with this modification.

As we discussed by telephone on January 31, 1996, the amended Part A is being submitted without the signature of the property owner (Metropolitan Water Reclamation District of Greater Chicago). The amended Part A was submitted to the Water District for their signature, however we did not receive a response from them prior to the time it was necessary to submit this modification. As soon as we receive the signed Part A from the Water District, it will be forwarded.

Thank you for your consideration of this Class 2 permit modification submittal. This information has also been submitted to the Illinois EPA. Please contact the undersigned at (708)739-1151 should you have any questions.

Sincerely,

HERITAGE ENVIRONMENTAL SERVICES, INC.

Ron Wilkins, CHMM
Compliance Manager

cc: G. Lindgren, Heritage Environmental Services, Inc.
M. King, Heritage Environmental Services, Inc.



USEPA Hazardous
Waste Number

Hazardous Waste

- K156 Organic waste (including heavy ends, still bottoms, light ends, spent solvents, filtrates, and decantates) from the production of carbamates and carbonyl oximes. (constituents for which listed; Benomyl, carbaryl, carbendazim, carbofuran, carbosulfan, formaldehyde, methylene chloride, triethylamine).
- K157 Wastewaters (including scrubber waters, condenser waters, washwaters, and separation waters) from the production of carbamates and carbonyl oximes (constituents for which listed; Carbon tetrachloride, formaldehyde, methyl chloride, methylene chloride, pyridine, triethylamine).
- K158 Bag house dusts and filter/separation solids from the production of carbamates and carbonyl oximes (constituents for which listed; Benomyl, carbendazim, carbofuran, carbosulfan, chloroform, methylene chloride).
- K159 Organics from the treatment of thiocarbamate wastes (constituents for which listed; Benzene, butylate, eptc, molinate, pebulate, vernolate).
- K160 Solids (including filter wastes, separation solids, and spent catalysts) from the production of thiocarbamates and solids from the treatment of thiocarbamate wastes (constituents for which listed; Benzene, butylate, eptc, molinate, pebulate, vernolate).
- K161 Putrification solids (including filtration, evaporation, and centrifugation solids) bag house dust and floor sweepings from the production of dithiocarbamate acids and their salts (constituents for which listed; Antimony, arsenic, metam-sodium, ziram).

<u>USEPA Hazardous Waste Number</u>	<u>Chemical Abstracts Number</u>	<u>Compound (common name follows in parentheses)</u>
P127	1563-66-2	7-Benzofuranol, 2,3-dihydro- 2,2-dimethyl-methylcarbamate (Carbofuran)
P128	315-18-4	Phenol, 4-(dimethylamino)-3,5-dimethyl-, methylcarbamate (ester) (Mexacarbamate)
P185	26419-73-8	1,3-Dithiolane-2-carboxaldehyde, 2,4-dimethyl-, O-[(methylamino)-carbonyl]oxime (Tirpate)
P188	57-64-7	Benzoic acid, 2-hydroxy-, compd. with (3aS-cis) - 1,2,3,3a,8,8a-hexahydro-1,2a,8-trimethylpyrrolo[2,3-b]indol-5-yl methylcarbamate ester (1:1) (Physostigmine salicylate)
P189	55285-14-8	Carbamic acid,[(dibutylamino)-thio] methyl-2,3-dihydro-2,2-dimethyl-7-benzofuranyl ester (Carbosulfan)
P190	1129-41-5	Carbamic acid, methyl-, 3-methylphenylester (Metolcarb)
P191	644-64-4	Carbamic acid, dimethyl -1-[(dimethyl-amino)carbonyl] -5-methyl-1H-pyrazol-3-yl ester (Dimetilan)
P192	119-38-0	Carbamic acid, dimethyl-, 3-methyl-1-(1-methylethyl)-1H-pyrazol-5-yl ester (Isolan)
P194	23135-22-0	Ethanimidothioc acid, 2-(dimethylamino)-N-[[[(methylamino) carbonyl]oxy]-2-oxo-, methyl ester (Oxamyl)
P196	15339-36-3	Manganese, bis(dimethylcarbamo dithioato-S,S')-, (Manganese dimethyldithiocarbamate)
P197	17702-57-7	Methanimidamide, N,N'-dimethyl-N'-[2-methyl-4-[[[(methylamino)carbonyl]oxy]phenyl]- (Formparanate)
P198	23422-53-9	Methanimidamide, N,N'-dimethyl-N'-[3-[[[(methylamino) carbonyl]oxy]phenyl]-, monohydrochloride (Formetanate hydrochloride)
P199	2032-65-7	Phenol, (3,5-dimethyl-4-(methylthio)-, methylcarbamate (Methiocarb)
P201	2631-37-0	Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate (Promecarb)

<u>USEPA Hazardous Waste Number</u>	<u>Chemical Abstracts Number</u>	<u>Compound</u>
P202	64-00-6	Phenol, 3-(1-methylethyl)-, methyl carbamate (m-Cumenyl methylcarbamate)
P203	1646-88-4	Propanal, 2-methyl-2-(methylsulfonyl)-, O-[(methylamino)carbonyl] oxime (Aldicarb sulfone)
P204	57-47-6	Pyrrolo[2,3-b]indol-5-ol, 1,2,3,3a,8,8a-hexahydro-1,3a,8-tri methyl-, methylcarbamate (ester), (3aS-cis)- (Physostigmine)
P205	137-30-4	Zinc, bis(dimethylcarbamodithioato-S,S')-, (Ziram)
U271	17804-35-2	Carbamic acid, [1-[(butylamino) carbonyl]- 1H-benzimidazol- 2-yl]-, methylester (Benomyl)
U277	95-06-7	Carbamodithioic acid, diethyl-, 2-chloro-2-propenylester (Sulfallate)
U278	22781-23-3	1,3-Benzodioxol-4-ol, 2,2-dimethyl-, methyl carbamate (Bendiocarb)
U279	63-25-2	1-Naphthalenol, methylcarbamate (Carbaryl)
U280	101-27-9	Carbamic acid, (3-chlorophenyl)-, 4-chloro-2-butynylester (Barban)
U364	22961-82-6	1,3-Benzodioxol-4-ol, 2,2-dimethyl-, (Bendiocarb phenol)
U365	2212-67-1	H-Azepine-1-carbothioic acid, hexahydro-, S-ethylester (Molinate)
U366	533-74-4	2H-1,3,5-thiadiazine-2-thione, tetrahydro-3,5-dimethyl (Dazomet)
U367	1563-38-8	7-Benzofuranol, 2,3-dihydro- 2,2-dimethyl (Carbofuran phenol)
U372	10605-21-7	Carbamic acid, 1H-benzimidazol-2-yl, methyl ester (Carbendazim)
U373	122-42-9	Carbamic acid, phenyl-, 1-methylethyl ester. (Propham)
U375	55406-53-6	Carbamic acid, butyl-, 3-iodo-2-propynyl ester (3-Iodo-2-propynyl n-butylcarbamate)
U376	144-34-3	Carbamodithioic acid, dimethyl-, tetraanhydrosulfide with orthothioselenious acid (Selenium, tetrakis (dimethyldithiocarbamate))

<u>USEPA Hazardous Waste Number</u>	<u>Chemical Abstracts Number</u>	<u>Compound</u>
U377	137-41-7	Carbamodithioic acid, methyl-,monopotassium salt (Potassium n-methyldithiocarbamate)
U378	51026-28-9	Carbamodithioic acid, (hydroxymethyl)methyl-, mono- potassium salt (Potassium hydroxymethyl-n-methyldithiocarbamate)
U379	136-30-1	Carbamodithioic acid, dibutyl, sodium salt (Sodium dibutyldithiocarbamate)
U381	148-18-5	Carbamodithioic acid, diethyl-, sodium salt (Sodium diethyldithiocarbamate)
U382	128-04-1	Carbamodithioic acid, dimethyl-, sodium salt (Sodium dimethyldithiocarbamate)
U383	128-03-0	Carbamodithioic acid, dimethyl, potassium salt (Potassium dimethyldithiocarbamate)
U384	137-42-8	Carbamodithioic acid, methyl-, monosodium salt (Metam sodium)
U385	1929-77-7	Carbamothioic acid, dipropyl-, S-propyl ester (Vernolate)
U386	1134-23-2	Carbamothioic acid, cyclohexylethyl-, S-ethyl ester (Cycloate)
U387	52888-80-9	Carbamothioic acid, dipropyl-, S-(phenylmethyl) ester (Prosulfocarb)
U389	2303-17-5	Carbamothioic acid, bis(1-methylethyl)- ,S-(2,3,3-trichloro-2-propenyl) ester (Triallate)
U390	759-94-4	Carbamothioic acid, dipropyl-, S-ethyl ester (EPTC)
U391	1114-71-2	Carbamothioic acid, butylethyl-, S-propyl ester (Pebulate)
U392	2008-41-5	Carbamothioic acid, bis(2-methylpropyl)-, S-ethylester (Butylate)
U393	137-29-1	Copper, bis(dimethyl- carbamodithioato-S,S')-, (Copper dimethyldithiocarbamate)
U394	30558-43-1	Ethanimidothioic acid, 2-(dimethylamino) -N-hydroxy-2-oxo-methyl ester (A2213)
U395	5952-26-1	Ethanol, 2,2'-oxybis-, dicarbamate (Diethylene glycol, dicarbamate)
U396	14484-64-1	Iron, tris(dimethyl- carbamodithioato-S,S')-, (Ferboum)

<u>USEPA Hazardous Waste Number</u>	<u>Chemical Abstracts Number</u>	<u>Compound</u>
U400	120-54-7	Piperidine, 1,1'-(tetrathiodicarbonothioyl)bis- (Bis(pentamethylene)thiuram tetrasulfide)
U401	97-74-5	Bis(dimethylthiocarbamoyl) sulfide (Tetrabutylthiuram monosulfide)
U402	1634-02-2	Thioperoxydicarbonic diamide, tetrabutyl (Tetrabutylthiuram disulfide)
U403	97-77-8	Thioperoxydicarbonic diamide, tetraethyl (Disulfiram)
U404	121-44-8	Ethanamine, N,N-diethyl- (Triethylamine)
U407	14324-55-1	Zinc, bis(diethylcarbamodithioato-S,S')- (Ethyl Ziram)
U409	23564-05-8	Carbamic acid, [1,2-phenylenebis (iminocarbonothioyl)]bis-, dimethyl ester (Thiophanate-methyl)
U410	59669-26-0	Ethanimidothioic acid, N,N'-[thiobis[(methylimino) carbonyloxy]]bis-, dimethyl ester (Thiodicarb)
U411	114-26-1	Phenol, 2-(1-methylethoxy)-, methylcarbamate (Propoxur)

HERITAGE ENVIRONMENTAL SERVICES, INC.



P.O. Box 337
Lemont, IL 60439-0337
Phone: 708/739-1151
FAX: 708/739-9491

RECEIVED

AUG 14 1995

August 4, 1995

Illinois Section
RCRA Permitting Branch (5HR-13)
U.S. Environmental Protection Agency Region 5
230 South Dearborn
Chicago, IL 60604

**OFFICE OF RCRA
WASTE MANAGEMENT DIVISION
EPA, REGION V**

**Re: Class 1 Permit Modification
Heritage Environmental Services, Inc.
Lemont, Illinois
USEPA ID No: ILD 085 349 264**

The purpose of this letter is to request a Class 1 permit modification for Heritage Environmental Services, Inc. (Heritage) Lemont Treatment Center. This request is a result of the listing of carbamate wastes generated during the production of carbamate chemicals and the listing of commercial chemical products containing carbamate/carbamate derivatives that are hazardous when discarded.

60 FR 7843 Section E.3 requires permitted hazardous waste management facilities managing the newly listed wastes to submit a Class 1 permit modification request no later than August 9, 1995. Heritage will notify the public within 90 days of submission of this request. Heritage will submit a Class 2 permit modification within 180 days of the effective date of the listing (August 9, 1995) if Heritage continues to manage the wastes in existing permitted units or newly regulated tank or container units and will not require additional or different management practices.

This Class 1 permit modification includes addition of the following hazardous waste numbers:

Hazardous waste from specific sources listed in 40 CFR 261.32:

K156, K157, K158, K159, K160, and K161; and,

Discarded commercial chemical products, off-specification species, container residues, and spill residues thereof listed in 40 CFR 261.33:

P127, P128, P185, P188, P189, P190, P191, P192, P194, P196, P197, P198, P199, P201, P202, P203, P204, P205, U271, U277, U278, U279, U280, U364, U365, U366, U367, U372, U373, U375, U376, U377, U378, U379, U381, U382, U383, U384, U385, U386, U387, U389, U390, U391, U392, U393, U394, U395, U396, U400, U401, U402, U403, U404, U407, U409, U410, and U411.

Heritage plans to manage these wastes in accordance with the existing permit conditions and management practices. This includes on-site storage, treatment, fuel blending, lab depack, third party disposal, and combinations thereof.





August 4, 1995

Page No. 2

As this Class 1 modification is temporary in nature, the appropriate pages of the existing permit have not been modified. The modified pages will be included as part of the Class 2 permit modification.

Heritage trusts that this submission fulfills all the requirements of 60 FR 7843. This information has also been submitted to the Illinois EPA. Please contact me at (708) 739-1151, should you have any questions.

Sincerely,

HERITAGE ENVIRONMENTAL SERVICES, INC.

Ron Wilkins

Ron Wilkins, CHMM
Compliance Manager

cc: G. Lindgren, Heritage Environmental Services, Inc.
M. King, Heritage Environmental Services, Inc.



B-128

Part B Revision
Contingency Plan

15884

HERITAGE ENVIRONMENTAL SERVICES, INC.

P.O. Box 337
Lemont, IL 60439-0337
Phone: 708/739-1151
FAX: 708/739-9491

May 26, 1995

Mr. Harry A. Chappel, P.E. Hazardous Waste Branch Manager
Permit Section, Bureau of Land Division of Land Pollution Control
Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, Illinois 62794-9276

RECEIVED

MAY 30 1995

IEPA - BUL
PERMIT SECTION

RE: Amendments to Contingency Plan
Heritage Environmental Services, Inc.
Canal Bank Road, N.E.
Lemont, Illinois 60439
ILD085349264 DLPC 0311620007

Dear Mr. Chappel:

This letter provides response to the May 1, 1995 letter from the Agency regarding the criteria for the implementation of the Contingency Plan at our facility. The purpose of this letter is to outline the changes which Heritage Environmental Services, Inc. (HERITAGE) believes will address Agency concerns and to obtain Agency concurrence with these changes before amending and re-transmitting the contingency plan to the mailing list. HERITAGE is amenable to amending the Contingency Plan as follows;

Section IV.D.2 Criteria for Implementing the Contingency Plan

Heritage will reduce the implementing criteria for a Supplemental Fuel release from 1000 gallons to 500 gallons. Heritage will remove the paragraph describing implementation criteria for the Fixation Building, since this is a proposed process which will probably not be developed. Heritage will reduce the implementing criteria for a release from the Drum Storage/Repack Area from 200 gallons for ignitable, corrosive, reactive and toxic wastes to 110 gallons.

Under the heading Release of Harmful Vapors, Heritage will amend the second paragraph to state;

"Included in Appendix IX is a list of waste materials which warrant special precautions based upon the modeling results presented in Appendix VIII. The contingency plan will be implemented for a release of the pure form of the materials specified in Appendix IX in a quantity of 1 pound or greater. Modelling of the downwind hazard will be conducted using the ARCHIE program. Should the Appendix IX material released be in a reduced concentration, the inverse of the actual concentration of the material should be utilized after ARCHIE modelling, in determining the downwind hazard distance. For example, an Appendix IX material is spilled which has a downwind hazard distance of 400 feet in pure form. The material that was spilled was a 60 percent concentration. Then, the downwind hazard distance is $(400 \text{ feet} \times 0.6) = 240 \text{ feet}.$ "





Mr. Harry Chappel
May 26, 1995
Page 2

The remainder of the section will be deleted.

Under the heading Notification and Assessment of Incident, Heritage will amend paragraph "b" to remove reference to the Special Precaution Waste Materials tracking form, and amend the paragraph immediately prior to paragraph "c" by removing reference to pre-advisement.

A discussion will be placed in Appendix VIII regarding the use of the ARCHIE modelling program to identify the critical hazardous wastes from a public safety standpoint which the site is permitted to accept.

Please note that in addition to these proposed amendments, the telephone and pager numbers of the Emergency Coordinators will be updated.

I trust that these proposed amendments will allow for approval of the Contingency Plan. Should you have any questions, or wish to discuss this further, please contact the undersigned, or Robert Garcia at (708)739-1151.

Sincerely,

HERITAGE ENVIRONMENTAL SERVICES, INC.

Ron Wilkins, CHMM
Compliance Manager

cc: Mark Schollenberger
Permit Section, Bureau of Land Division of Land Pollution Control
Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, Illinois 62794-9276

Gary Lindgren - Heritage Indianapolis
Angie Martin - Heritage Indianapolis

RW/sh





State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

US EPA

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

217/524-3300

Log # B-128

May 1, 1995

Robert Garcia
Heritage Environmental Services
P.O. Box 337
Lemont, Illinois 60439

Re: 0311620007 -- Cook County
Heritage Environmental Services
ILD085349264
RCRA Permit File

Dear Mr. Garcia:

This letter is written in response to the July 27, 1993 submittal of information. The information to be was identified in Conditions VI(E)(1) through (6), (8) and (9) of the Part B Permit originally issued March 24, 1993. The Agency has reviewed the information contained in the submittal and has determined the Permittee has fulfilled the requirements of the Permit except for Condition VI(E)(1)(c). Specifically:

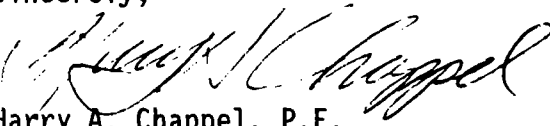
1. Heritage must provide a spill volume in the contingency plan that indicates when the potential for a release off-site of harmful vapors has occurred, until such information is provided you must report any spill greater than one pound;
2. Spill volumes must be provided for the hazardous constituents identified in Appendix IX of your contingency plan; and
3. The modelling must incorporate the following assumptions unless justification is provided for the alternate assumption:
 - a. A source height at groundlevel;
 - b. A wind speed of 5 mph;
 - c. An atmospheric stability class of F;
 - d. The spill to occur at the closest unit, which would store the constituent being modelling, to the property line;
 - e. The pool (i.e., spill) has a 1.0 cm depth and
 - f. The pool area cannot exceed the area of secondary containment if present.

Based on our discussions of your contingency plan, the following revisions should/could be incorporated into your contingency plan:

1. The contingency plan should be modified to reflect the use of actual spill conditions if you do not wish to use spill volumes based on pure concentrations. When determining if notification of the local officials is warranted, the model spill volume may be multiplied by the inverse of the concentration (by weight percent) of the compound in question.
2. The contingency plan should be modified (clarified) to indicate the air modelling at the beginning of each shift is performed if the constituents/compounds identified in Appendix IX are present in pure form (i.e., when the potential for an off-site impact is the greatest).

Should you have any questions or comments regarding the above, please contact Mark A. Schollenberger, P.E. of my staff at 217/524-3307.

Sincerely,


Harry A. Chappel, P.E.
Hazardous Waste Branch Manager
Permit Section, Bureau of Land

HAC:MAS/mls/183X/16-17

cc: USEPA Region V

B-108-M-4
cc: Maywood
USEPA
TJ
MAS

HERITAGE ENVIRONMENTAL SERVICES, INC.

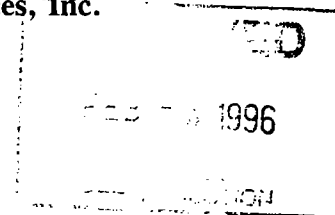


P.O. Box 337
Lemont, IL 60439-0337
Phone: 708/739-1151
FAX: 708/739-9491

February 1, 1995

Mark Schollenberger
Division of Land Pollution Control, Bureau of Land
Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, IL 62794-9276

**Re: Class 2 Permit Modification IL296-1
Addition of Hazardous Waste Codes
Heritage Environmental Services, Inc.
Lemont, Illinois
USEPA ID No: ILD085349264**



Dear Mr. Schollenberger:

The purpose of this letter is to submit a Class 2 permit modification for Heritage Environmental Services, Inc. (Heritage) Lemont Treatment Center. This request is a result of the listing of carbamate wastes generated during the production of carbamate chemicals and the listing of commercial chemical products containing carbamate/carbamate derivatives that are hazardous when discarded. As is customary with new waste listings, a permittee (i.e. Heritage) is required to submit a Class 1 permit modification followed by a Class 2 permit modification within 180 days of the effective date of the listing to manage the new waste numbers. Heritage submitted a Class 1 permit modification on August 4, 1995. This Class 2 permit modification addresses the addition of both the new waste listings and the recent assignment of an address to the facility.

This Class 2 permit modification includes addition of the following hazardous waste numbers:

Hazardous waste from specific sources listed in 40 CFR 261.32:
K156, K157, K158, K159, K160, and K161; and,

Discarded commercial chemical products, off-specification species, container residues, and spill residues thereof listed in 40 CFR 261.33:

P127, P128, P185, P188, P189, P190, P191, P192, P194, P196, P197, P198, P199,
P201, P202, P203, P204, P205, U271, U277, U278, U279, U280, U364, U365,
U366, U367, U372, U373, U375, U376, U377, U378, U379, U381, U382, U383,
U384, U385, U386, U387, U389, U390, U391, U392, U393, U394, U395, U396,
U400, U401, U402, U403, U404, U407, U409, U410, and U411.

Heritage plans to manage these wastes in accordance with the existing permit conditions and management practices. This includes on-site storage, treatment, blending, lab depack, third party disposal, and combinations thereof. Heritage requests that our Part B permit be modified in such a manner that we may store and/or treat these materials in tanks in addition to storage in containers.





February 1, 1996

Page No. 2

The modified pages of the State permit are enclosed as part of this Class 2 permit modification. Included are supplemental pages to Attachment A. The Part A has also been modified to include the new waste numbers as well as to reflect the recently assigned address. Sections XV (Map), XVI (Facility Drawing), and XVII (Photographs) of the Part A have not been modified and therefore are not included with this modification.

Thank you for your attention to this Class 2 permit modification submittal. This information has also been submitted to USEPA Region 5. Please contact the undersigned at (708)739-1151 should you have any questions.

Sincerely,

HERITAGE ENVIRONMENTAL SERVICES, INC.

Ron Wilkins, CHMM
Compliance Manager

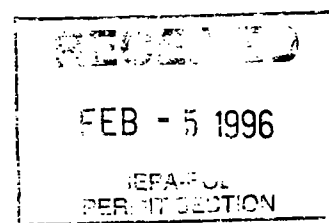
cc: G. Lindgren, Heritage Environmental Services, Inc.
M. King, Heritage Environmental Services, Inc.



USEPA Hazardous
Waste Number

Hazardous Waste

- K156 Organic waste (including heavy ends, still bottoms, light ends, spent solvents, filtrates, and decantates) from the production of carbamates and carbonyl oximes. (constituents for which listed; Benomyl, carbaryl, carbendazim, carbofuran, carbosulfan, formaldehyde, methylene chloride, triethylamine).
- K157 Wastewaters (including scrubber waters, condenser waters, washwaters, and separation waters) from the production of carbamates and carbonyl oximes (constituents for which listed; Carbon tetrachloride, formaldehyde, methyl chloride, methylene chloride, pyridine, triethylamine).
- K158 Bag house dusts and filter/separation solids from the production of carbamates and carbonyl oximes (constituents for which listed; Benomyl, carbendazim, carbofuran, carbosulfan, chloroform, methylene chloride).
- K159 Organics from the treatment of thiocarbamate wastes (constituents for which listed; Benzene, butylate, eptc, molinate, pebulate, vernolate).
- K160 Solids (including filter wastes, separation solids, and spent catalysts) from the production of thiocarbamates and solids from the treatment of thiocarbamate wastes (constituents for which listed; Benzene, butylate, eptc, molinate, pebulate, vernolate).
- K161 Putrifaction solids (including filtration, evaporation, and centrifugation solids) bag house dust and floor sweepings from the production of dithiocarbamate acids and their salts (constituents for which listed; Antimony, arsenic, metam-sodium, ziram).



<u>USEPA Hazardous Waste Number</u>	<u>Chemical Abstracts Number</u>	<u>Compound (common name follows in parentheses)</u>
P127	1563-66-2	7-Benzofuranol, 2,3-dihydro- 2,2-dimethyl-methylcarbamate (Carbofuran)
P128	315-18-4	Phenol, 4-(dimethylamino)-3,5-dimethyl-,methylcarbamate (ester) (Mexacarbamate)
P185	26419-73-8	1,3-Dithiolane-2-carboxaldehyde, 2,4-dimethyl-, O-[(methylamino)-carbonyl]oxime (Tirpate)
P188	57-64-7	Benzoic acid, 2-hydroxy-, compd. with (3aS-cis) - 1,2,3,3a,8,8a-hexahydro-1,2a,8-trimethylpyrrolo[2,3-b]indol-5-yl methylcarbamate ester (1:1) (Physostigmine salicylate)
P189	55285-14-8	Carbamic acid,[(dibutylamino)-thio] methyl-2,3-dihydro-2, 2-dimethyl-7-benzofuranyl ester (Carbosulfan)
P190	1129-41-5	Carbamic acid, methyl-, 3-methylphenylester (Metolcarb)
P191	644-64-4	Carbamic acid, dimethyl -1-[(dimethyl-amino)carbonyl] -5-methyl-1H-pyrazol-3-yl ester (Dimetilan)
P192	119-38-0	Carbamic acid, dimethyl-, 3-methyl-1-(1-methylethyl)-1H-pyrazol-5-yl ester (Isolan)
P194	23135-22-0	Ethanimidothioc acid, 2-(dimethylamino)-N-[[[(methylamino) carbonyl]oxy]-2-oxo-, methyl ester (Oxamyl)
P196	15339-36-3	Manganese, bis(dimethylcarbamo dithioato-S,S')-, (Manganese dimethyldithiocarbamate)
P197	17702-57-7	Methanimidamide, N,N'-dimethyl-N'-[2-methyl-4-[[[(methylamino)carbonyl]oxy]phenyl]- (Formparanate)
P198	23422-53-9	Methanimidamide, N,N'-dimethyl-N'-[3-[[[(methylamino) carbonyl]oxy]phenyl]-, monohydrochloride (Formetanate hydrochloride)
P199	2032-65-7	Phenol, (3,5-dimethyl-4-(methylthio)-, methylcarbamate (Methiocarb)
P201	2631-37-0	Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate (Promecarb)

<u>USEPA Hazardous Waste Number</u>	<u>Chemical Abstracts Number</u>	<u>Compound</u>
P202	64-00-6	Phenol, 3-(1-methylethyl)-, methyl carbamate (m-Cumenyl methylcarbamate)
P203	1646-88-4	Propanal, 2-methyl-2-(methylsulfonyl)-, O-[(methylamino)carbonyl] oxime (Aldicarb sulfone)
P204	57-47-6	Pyrrolo[2,3-b]indol-5-ol, 1,2,3,3a,8,8a-hexahydro-1,3a,8-tri methyl-, methylcarbamate (ester), (3aS-cis)- (Physostigmine)
P205	137-30-4	Zinc, bis(dimethylcarbamodithioato-S,S')-, (Ziram)
U271	17804-35-2	Carbamic acid, [1-[(butylamino) carbonyl]- 1H-benzimidazol- 2-yl]-, methylester (Benomyl)
U277	95-06-7	Carbamodithioic acid, diethyl-, 2-chloro-2-propenylester (Sulfallate)
U278	22781-23-3	1,3-Benzodioxol-4-ol, 2,2-dimethyl-, methyl carbamate (Bendiocarb)
U279	63-25-2	1-Naphthalenol, methylcarbamate (Carbaryl)
U280	101-27-9	Carbamic acid, (3-chlorophenyl)-, 4-chloro-2-butynelester (Barban)
U364	22961-82-6	1,3-Benzodioxol-4-ol, 2,2-dimethyl-, (Bendiocarb phenol)
U365	2212-67-1	H-Azepine-1-carbothioic acid, hexahydro-, S-ethylester (Molinate)
U366	533-74-4	2H-1,3,5-thiadiazine-2-thione, tetrahydro-3,5-dimethyl (Dazomet)
U367	1563-38-8	7-Benzofuranol, 2,3-dihydro- 2,2-dimethyl (Carbofuran phenol)
U372	10605-21-7	Carbamic acid, 1H-benzimidazol-2-yl, methyl ester (Carbendazim)
U373	122-42-9	Carbamic acid, phenyl-, 1-methylethyl ester. (Propham)
U375	55406-53-6	Carbamic acid, butyl-, 3-iodo-2-propynyl ester (3-Iodo-2-propynyl n-butylcarbamate)
U376	144-34-3	Carbamodithioic acid, dimethyl-, tetraanhydrosulfide with orthoithioselenious acid (Selenium, tetrakis (dimethyldithiocarbamate))

<u>USEPA Hazardous Waste Number</u>	<u>Chemical Abstracts Number</u>	<u>Compound</u>
U377	137-41-7	Carbamodithioic acid, methyl-,monopotassium salt (Potassium n-methyldithiocarbamate)
U378	51026-28-9	Carbamodithioic acid, (hydroxymethyl)methyl-, mono- potassium salt (Potassium hydroxymethyl-n-methyldithiocarbamate)
U379	136-30-1	Carbamodithioic acid, dibutyl, sodium salt (Sodium dibutyldithiocarbamate)
U381	148-18-5	Carbamodithioic acid, diethyl-, sodium salt (Sodium diethyldithiocarbamate)
U382	128-04-1	Carbamodithioic acid, dimethyl-, sodium salt (Sodium dimethyldithiocarbamate)
U383	128-03-0	Carbamodithioic acid, dimethyl, potassium salt (Potassium dimethyldithiocarbamate)
U384	137-42-8	Carbamodithioic acid, methyl-, monosodium salt (Metam sodium)
U385	1929-77-7	Carbamothioic acid, dipropyl-, S-propyl ester (Vernolate)
U386	1134-23-2	Carbamothioic acid, cyclohexylethyl-, S-ethyl ester (Cycloate)
U387	52888-80-9	Carbamothioic acid, dipropyl-, S-(phenylmethyl) ester (Prosulfocarb)
U389	2303-17-5	Carbamothioic acid, bis(1-methylethyl)- ,S-(2,3,3-trichloro-2-propenyl) ester (Triallate)
U390	759-94-4	Carbamothioic acid, dipropyl-, S-ethyl ester (EPTC)
U391	1114-71-2	Carbamothioic acid, butylethyl-, S-propyl ester (Pebulate)
U392	2008-41-5	Carbamothioic acid, bis(2-methylpropyl)-, S-ethylester (Butylate)
U393	137-29-1	Copper, bis(dimethyl- carbamodithioato-S,S')-, (Copper dimethyldithiocarbamate)
U394	30558-43-1	Ethanimidothioic acid, 2-(dimethylamino) -N-hydroxy-2-oxo-methyl ester (A2213)
U395	5952-26-1	Ethanol, 2,2'-oxybis-, dicarbamate (Diethylene glycol, dicarbamate)
U396	14484-64-1	Iron, tris(dimethyl- carbamodithioato-S,S')-, (Ferboum)

<u>USEPA Hazardous Waste Number</u>	<u>Chemical Abstracts Number</u>	<u>Compound</u>
U400	120-54-7	Piperidine, 1,1'-(tetrathiodicarbonothioyl)bis- (Bis(pentamethylene)thiuram tetrasulfide)
U401	97-74-5	Bis(dimethylthiocarbamoyl) sulfide (Tetrabutylthiuram monosulfide)
U402	1634-02-2	Thioperoxydicarbonic diamide, tetrabutyl (Tetrabutylthiuram disulfide)
U403	97-77-8	Thioperoxydicarbonic diamide, tetraethyl (Disulfiram)
U404	121-44-8	Ethanamine, N,N-diethyl- (Triethylamine)
U407	14324-55-1	Zinc, bis(diethylcarbamoedithioato-S,S')- (Ethyl Ziram)
U409	23564-05-8	Carbamic acid, [1,2-phenylenebis (iminocarbonothioyl)]bis-, dimethyl ester (Thiophanate-methyl)
U410	59669-26-0	Ethanimidothioic acid, N,N'-[thiobis[(methylimino) carbonyloxy]]bis-, dimethyl ester (Thiodicarb)
U411	114-26-1	Phenol, 2-(1-methylethoxy)-, methylcarbamate (Propoxur)



State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

USEPA

G. Hamp

Mary A. Gade, Director
217/524-3300

2200 Churchill Road, Springfield, IL 62794-9276

December 16, 1993

Mr. Robert D. Garcia
Heritage Environmental Services Inc.
Post Office Box 337
Lemont, Illinois 60439

Mr. Frank E. Dalton
Metropolitan Water Reclamation
District of Greater Chicago
100 East Erie Street
Chicago, Illinois 60611

Re: 0311620007 -- Cook County
Heritage Environmental Services
ILD085349264
Permit Log 128-M-1
RCRA Permit File

Dear Messrs. Garcia and Dalton:

This letter is in response to your July 30, 1993 Class I Modification Request letter regarding typographical errors and requested clarifications on conditions in the final Resource Conservation and Recovery Act (RCRA) Hazardous Waste Management Permit issued on March 24, 1993. Due to the error in the USEPA ID number, we have reprinted the entire state portion of the permit. The Agency has responded to the items in the order that they were presented.

Comment:

**Cover Page to Permit
Facility Permit Expiration Date Typographical Error**

Please correct the typographical error in the facility expiration date from April 28, 1993 to April 28, 2003.

Agency Response: The correction has been duly noted and made.

Comment:

**Header on Pages 1 through 188 of the Permit
Typographical Error**

Please correct the typographical error in the USEPA Identification Number from ILD085349265 to ILD085349264.

Agency Response: The correction has been duly noted and made.

Comment:

**Section I.E.1.a.iii.c. and d.; Page I-5 of I-12; Page 5
Volume restrictions on NFPA Class IC and Class II Liquids**

Page 2

Based on review of the August 17, 1990 Edition of ANSI/NFPA 30, Page 30-34, Table 4-8, the arrangement limitation for Class 1C Liquids and Class II Liquids is 4,400 gallons and 8,800 gallons respectively. Please correct the 2,860 gallon limitation specified in Items I.E.1.a.iii.c. and d. to 4,400 and 8,800 gallons respectively.

Heritage recognizes that the limitation specified in the permit may be a result of specifying the condition based on the spacing limitation in an arrangement in the outdoor container storage area, however, Heritage believes the limitation does not account for double stacking in an arrangement for these types of liquids which is altered in NFPA 30. The containment volume required in 40 CFR Part 264 Subpart I for the outdoor storage area is adequate.

Agency Response: The correction has been duly noted and made.

Comment:

Section II.E.7; Page II-8 of II-17; Page 20
Section II.I.4; Page II-12 of II-17; Page 23

Application of consistent language in the permit for removing precipitation from containment areas.

Please revise the language concerning precipitation in Section II.E.7 and II.I.4 to be consistent with other language in the permit concerning removal of precipitation from secondary containment systems. The preferred language is found in Section I.J.3 (Page I-9 of I-12; Page 9) and is stated as follows:

"The permittee shall begin removal of any precipitation that accumulates in the secondary containment systems and collection sumps by the next operating shift after the precipitation event has ended."

Agency Response: The Agency agrees that the language should be consistent. The corrections have been duly noted and made.

Comment:

Section III.C.6.; Page III-5 of III-12; Page 34

Provision that all hazardous waste must possess a load bearing capacity of 2.0 tons per square foot.

This permit condition is only applicable to hazardous wastes landfilled in the State of Illinois per 35 IAC 729.310. The condition is not applicable to hazardous waste landfills in other states that may have more or less stringent requirements prior to landfilling. In the event that hazardous wastes are shipped from the Heritage facility in Illinois to a hazardous waste landfill in Illinois, Heritage will comply with the provisions for testing of the materials as established in 35 IAC 729.321 and shipment of solidified wastes as established in 35 IAC 729.310(c).

Heritage suggests that the following language replace the current language in Section III.C.6.:

"All hazardous waste sent off site for land disposal in the State of Illinois shall possess a load bearing capacity of 2.0 tons per square foot as described in 35 IAC 729.321(b)."

Agency Response: The correction has been duly noted and made.

Section VI.A.13 and Section VI.A.16., Page VI-3 of VI-13, Page 69

Clarification regarding fume hoods at the facility

Heritage requests that the language regarding fume hoods be expanded to encompass the fabricated vacuum devices for labpacks in use at the facility. Heritage requests that Sections VI.A.13 and 16 be combined into one condition as follows:

"13. The opening and consolidation of lab packs shall be conducted within the confines of an operating fume hood or functionally-equivalent vacuum device."

Agency Response: The Agency agrees that the self-fabricated devices meet the regulatory requirements and the intent of the special condition. The language has been modified as proposed.

Comment:

Section VI.B.2, Page VI-5 of VI-13, Page 71

Clarification of rebuttal procedures

Heritage requests to clarify that generator-supplied knowledge or information (i.e. MSDS) is a permissible substitute for full-scale GC/MS analyses in supporting the rebuttable presumption. Heritage requests the following language for the fifth sentence of the second paragraph of Section VI.B.2:

"At a minimum, the rebuttal shall include (1) the concentrations of halogenated solvents as determined by GC/MS Test Methods (i.e., SW-846 Method 8240), or (2) if available, material safety data sheets for the waste."

Agency Response: The clarification to allow generator information in the rebuttable presumption has been duly noted and made.

Comment:

Section VI.B.9; Page VI-6 of VI-13; Page 72

Heritage has discussed this comment with the IEPA and the IEPA has agreed to revise the section to allow Heritage to maintain documentation in the

operating record rather than providing separate Agency submittals. Heritage suggests revised language for Section VI.B.9 as follows:

"9. All hazardous wastes accepted at this site for blending into a hazardous waste fuel to be burned for energy recovery must have a minimum heat of combustion value of 5,000 Btu per pound. This requirement will be waived if the Permittee documents in the facility operating record that the facility which receives the hazardous waste fuel has interim status or a Part B permit in accordance with 35 IAC Parts 725 or 724 respectively, or is in compliance with 35 IAC 726 Subpart H regarding boilers and industrial furnaces. Compliance with this requirement can be demonstrated through copies of relevant permit pages agency acknowledgement letters, or certifications."

Agency Response: The revised language is acceptable to the Agency with a statement included that this information be made available to the Agency upon written or verbal request.

Comment:

Section VI.E.1; Page VI-9 of VI-13, Page 75

Clarification in Implementing the Contingency Plan

Heritage requests to clarify the language concerning implementation of the Contingency Plan. It is Heritage's understanding that implementation of the Contingency Plan will be performed in accordance with the most recent version of the plan until a revised Contingency Plan is approved that addresses the issues described in Section VI.E.3. Heritage requests the following revised language for Item 1:

"1. The Permittee shall follow the provisions of the approved contingency plan following a (1) release of hazardous waste in excess of quantity thresholds specified in the Contingency Plan (page 9) or, (2) off-site release of hazardous waste with the potential to threaten human health and the environment, or (3) fire or explosion which involves hazardous waste or which occurs in areas where hazardous waste is treated, stored or disposed."

Agency Response:

After review of your request for clarification and review of 35 Illinois Administrative Code 724.151 and 724.156, the Agency is revising I(E)(1) as follows:

1. The permittees shall implement the approved contingency plan any time there is a (1) fire or explosion which involves hazardous waste or which occurs in areas which hazardous waste is treated or stored or, (2) release of hazardous waste or hazardous waste constituents to the environment.
 - a. The permittees shall report the implementation of the contingency plan due to a fire or explosion which involves hazardous waste or

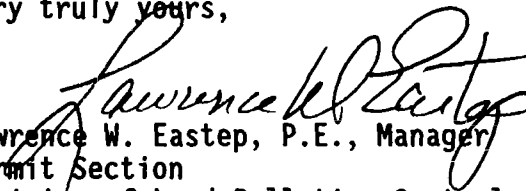
which occurs in areas in which hazardous waste is treated or stored to the emergency response entities identified in Condition VI(E)(2)(a) below in all instances.

- b. The permittees shall report the implementation of the contingency plan due to a release to the emergency response entities as identified in Condition VI(E)(2)(a) below unless the spill is less than one pound in quantity and immediately cleaned up or the permittees have modified the permit in accordance with the provisions of Condition VI(E)(1)(C) below.
- c. The reporting requirements identified in Condition VI(E)(1)(b) above shall remain in effect until such time as the permittees have provided documentation of release volumes based on an air modeling program. The program must demonstrate that the quantity of hazardous waste or hazardous waste constituents released is below the threshold release quantity of hazardous waste or hazardous waste constituents which have an impact off-site. This air modeling must be performed for each hazardous waste identified in 35 IAC 721 Subpart C or hazardous waste or hazardous waste constituent in a pure state identified in 35 IAC 721 Appendix G and/or Appendix H for each RCRA Hazardous Waste Code that the facility is permitted to accept. The results of this modeling shall be made the subject of a Class 1* modification to this permit.
- d. The permittees shall document each implementation of the contingency plan in the facility's operating record. This information shall be made available to the Agency upon written or verbal request. In the event of an emergency, the permittees shall follow the emergency procedures identified at 35 IAC 724.156, including follow-up reports to the Agency, at all times.

As an addition to this modification request, the Agency has reviewed and approved the facility's most recent Part A Modification, Log A474, dated December 7, 1992 signed by Mr. Frank E. Dalton, General Superintendent, Metropolitan Water Reclamation District of Greater Chicago, and by Mr. Kenneth S. Price, President, Heritage Environmental Service.

If you have any additional questions regarding this matter, please contact Clarence L. Smith of my staff at 217/524-3300.

Very truly yours,


Lawrence W. Eastep, P.E., Manager
Permit Section
Division of Land Pollution Control
Bureau of Land

^{DW}
LWE:CLS/mls/sp775Y/1-5



State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

RCRA Log 128-M-1

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
RESOURCE CONSERVATION AND RECOVERY ACT
HAZARDOUS WASTE MANAGEMENT PERMIT

IEPA No.: 0311620007 -- Cook County
USEPA ILD085349264
Heritage Environmental Services
Lemont, Illinois Facility
RCRA Permit Log No.: 128-M-1
RCRA -- Part B - Administrative Record

Issue Date: March 24, 1993
Effective Date: April 28, 1993
Expiration Date: April 28, 2003
Modification Date: December 16, 1993

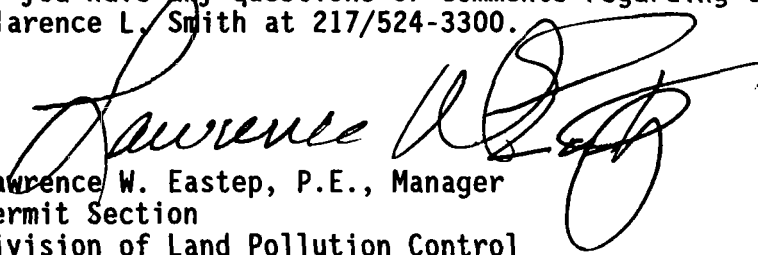
Heritage Environmental Services, Inc.
Post Office Box 337
Canal Bank Road, Northeast
Lemont, Illinois 60439

Metropolitan Water Reclamation District
of Greater Chicago
100 East Erie Street
Chicago, Illinois 60611

A Resource Conservation and Recovery Act (RCRA) Hazardous Waste Management Permit is hereby issued pursuant to the Resource Conservation and Recovery Act, Illinois Environmental Protection Act, and Title 35 Illinois Administrative Code (35 IAC) Parts 702, 703, 705, and 720 through 729 to Heritage Environmental Services and the Metropolitan Water Reclamation District of Greater Chicago (herein known as the Permittees) to construct, maintain and operate a waste management facility involved in the storage and treatment of hazardous waste. Heritage Environmental Services is located at Canal Bank Road, Northeast, Lemont, Illinois.

This Permit consists of the conditions contained herein (including those in any attachments and appendices) and applicable regulations contained in the Illinois Environmental Protection Act and Title 35 IAC Parts 702, 703, 705 and 720 through 729 in effect on the effective date of this permit. The Environmental Protection Act (Ill. Rev. Stat., Chapter 111 1/2, Section 1039) grants the Illinois Environmental Protection Agency the authority to impose conditions on permits which are issued. This Permit contains 189 pages, including Attachments A through G.

If you have any questions or comments regarding this permit, please contact Clarence L. Smith at 217/524-3300.


Lawrence W. Eastep, P.E., Manager
Permit Section
Division of Land Pollution Control
Bureau of Land

LWE:CLS:lat/sp/109q,3

cc: George Hamper -- USEPA Region V ✓
Juana Rojo -- USEPA Region V

Resource Conservation and Recovery Act
Hazardous Waste Management Permit

Heritage Environmental Services, Inc.

Lemont Facility

ILD085349264

DLPC 0311620007

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SECTION I -- CONTAINERS

A. Summary

Containers of hazardous waste received at the facility for storage will arrive in either 5 gallon pails (steel or plastic), 16 gallon drums (steel or plastic), 30 gallon drums (steel or plastic) or 55 gallon drums (steel or plastic). Other containers may also be accepted provided they are DOT approved, in good condition, compatible with the waste and can be safely managed by this facility. These containers will be stored in the areas designated in Condition I(B)(1). The Permittees may also store waste generated on-site in these storage areas prior to shipment off-site. Containers in the storage areas located inside a building must be stored in a manner which is consistent with the NFPA requirements for a liquid waste storage warehouse.

B. Waste Identification

1. All hazardous waste stored in containers shall be located in the storage areas shown below:

a. Existing Storage Areas

<u>Designation</u>	<u>Dimensions of Area</u>	<u>Secondary Containment (Gallons)</u>	<u>Maximum Number and type of Containers</u>
Outdoor Container Storage Area	30'8" x 71'4"	19,020	260-55 Gallon Drums
Van Trailer Storage Area	35'8" x 73'4"	7,480	800-55 Gallon Drums
Drum Storage and Processing Building (Aisles 1-4)	5'0" x 29'0" (Each)	185 (Each) 740 (Total)	28-55 Gallon Drums (Each) 112-55 Gallon Drums (Total)
Drum Storage and Processing Building (Aisles 5-11)	4'6" x 56'0" (Each)	278 (Each) 1,946 (Total)	48-55 Gallon Drums (Each) 336-55 Gallon Drums (Total)
Drum Staging and Transfer Area, Labpack Depack Area	41'4" x 62'8"	1,998	20-55 Gallon Drums

b. Proposed Storage Areas

External Lab Pack
Storage Units

(2-4 Drum Units)	5'6" x 5'7"	75 (Each)	4-55 Gallon Drums (Each)
(2-10 Drum Units)	5'6" x 10'3"	135 (Each)	10-55 Gallon Drums (Each)

2. The Permittees may only store containers of hazardous waste identified in Attachment A and specifically identified in the facility's current supplemental permit (Permit Number 1986-116-SP). Storage outside the areas identified in I(B)(1) is prohibited.
3. In addition to using the chemical compatibility chart included as Section 2.1.11 of the Waste Analysis Plan in the approved permit application. The Permittees shall also assess liquid waste containerized storage compatibility by performing a Liquid Waste Compatibility Test on the waste received for container storage with a composite sample aggregating all wastes taken from the hazardous waste container storage bay and adjacent bays. If the incoming sampling passes the Liquid Waste Compatibility criteria, an aliquot of the incoming sample shall be added to the composite to create a compatibility composite for the next waste. The Liquid Compatibility Test shall be performed in accordance with ASTM Test Method D5058. This test shall apply to a liquid containerized waste. A new composite sample shall be created at least once a week.

c. Condition of Containers

1. If a container holding waste is not in good condition (e.g., severe rusting, apparent structural defect, etc.) or if it begins to leak (this includes waste which appears on the outside of the drum/box but has not spread to the containment base or other containers), the Permittees must immediately transfer the waste from this container to a container that is in good condition or manage the waste in accordance with the Approved Permit Application.
2. Any transfer of waste which was required to comply with I(C)(1), must be recorded in the facility's operating record.
3. Packaging of all wastes accepted for storage in the container storage area shall meet the requirements of 49 CFR 172, 178 and 179 and all applicable D.O.T. and N.F.P.A. regulations. All containers must be marked and placarded in accordance with 49 CFR 172.

4. The contents of each container shall be clearly identified on the side of the container in accordance with 49 CFR 172 prior to being placed in the container storage area.

D. Compatibility of Waste With Containers

The Permittees must use a container made of or lined with material which will not react with and is otherwise compatible with the waste to be stored so that the ability of the container to contain the waste is not impaired.

E. Management of Containers

The Permittees shall comply with the following management practices:

1. The following management practices apply to arrangements of containers that contain one or more containers of D001 waste.
 - a. The height and maximum total container volume are dependent, in part, on whether the container storage area has an operative and fire marshal approved fire protection system (i.e. automatic sprinklers). Prior to storing containers in accordance with I(E)(1)(a)(ii), the fire protection for the container storage area shall comply with the National Fire Protection Association's, Fire Prevention Code, NFPA 30, Flammable and Combustible Liquids Code, Section 4-6 (NFPA 30 §4-6).
 - i. For the indoor container storage areas that are not protected by a fire protection system approved by the fire marshal:
 1. The maximum stacking height shall not exceed:
 - a. 5 feet, for stacks which contain liquids with a flashpoint less than 100°F.
 - b. If all the containers in a stack that contain liquids that have a flashpoint greater than 100°F, the maximum height shall be 6.5 ft., unless the waste is stored in accordance with I(E)(2)(a), I(E)(2)(b) and I(E)(2)(c).
2. Each arrangement of containers (i.e. containers grouped in a given area) shall be separated from other arrangements of containers by a four foot (4') aisle. The maximum volume of containers in each arrangement shall not exceed the following:

- a. 2,750 gallons, for arrangements with one or more containers of waste which has a flashpoint less than 100°F.
 - b. 8,250 gallons, if all containers within the arrangement contain waste with a flashpoint greater than 100°F.
 3. No container shall be closer than 3 feet to the nearest beam, chord, girder, or other roof member.
- ii. For the indoor container storage areas that are protected by a fire protection system approved by the fire marshal:
1. The maximum height shall not exceed six and one half feet (6.5') if any container in the stack has a flashpoint less than 100°F, or
 2. The maximum height shall not exceed the requirements of I(E)(1)(a) or I(E)(1)(a) provided all containers of waste within the arrangement have a flashpoint greater than 100°F.
 3. Each arrangement of containers shall be separated from other arrangements of containers by a four foot (4') aisle. The maximum volume of containers in each arrangement shall not exceed the following:
 - a. 5,000 gallons for arrangements with one or more containers of waste which has a flashpoint less than 100°F.
 - b. 10,000 gallons for arrangements if all containers within the arrangement contain waste with a flashpoint greater than 100°F.
- iii. For outdoor container storage areas:
1. The maximum height shall not exceed 6.5 feet for the purpose of inspectability.
 2. Each arrangement of containers shall be separated from other arrangements by a five foot aisle. The maximum volume of containers in each arrangement shall not exceed the following:

- a. 1,100 gallons for arrangements with one or more containers of waste which have a flashpoint of less than 73°F and a boiling point of less than 100°F (NFPA Class IA Liquids).
 - b. 2,200 gallons for arrangements with one or more containers of waste which have a flashpoint of less than 73°F and a boiling point of 100°F or greater (NFPA Class IB Liquids).
 - c. 4,400 gallons for arrangements with one or more containers of waste which have a flashpoint of greater than 73°F and less than 100°F (NFPA Class IC Liquids).
 - d. 8,800 gallons for arrangements with one or more containers of waste which have a flashpoint of greater than 100°F and less than 140°F (NFPA Class II Liquids).
 - e. Each container shall be no further than 12 feet from an aisle as identified in I(E)(1)(a)(i)(2), I(E)(1)(a)(ii)(3) or I(E)(1)(a)(iii)(2).
2. The following management practices apply to arrangements of containers that do not include any containers holding D001 waste.
 - a. Within each arrangement of containers an aisle must be maintained between each row of pallets and between the pallets and a wall. The aisle must be a minimum of two feet wide. This is for the purpose of providing access for inspection of each container.
 - b. The containers shall be clearly marked with the date received prior to being placed into storage.
 - c. The date on each container must be clearly visible. In the event a group of containers arrives on-site, shrink wrapped or banded together and are not separated prior to storage, the date may be marked on the group in lieu of each individual container, provided the date is clearly visible from the inspection aisle.
3. The main aisle shall be a minimum of 3 feet (36 inches) wide and access shall be maintained to all doors required for egress, including emergency exits.

4. Containers may be stacked provided that:
 - a. Only the same size or smaller containers are stacked on top of the containers beneath; and
 - b. Containers are separated by a pallet or other dunnage to provide stability and prevent excessive stress on container walls.
5. A container holding waste must always be closed during storage, except when it is necessary to sample or to add or remove waste.
6. All containers of hazardous waste with a suspected flashpoint less than 100°F shall be stored in accordance with the following procedures:
 - a. In the event no sampling and analysis of the shipment is completed prior to placing the waste into storage, all waste shall be stored as D001 waste with a flashpoint less than 100°F.
 - b. If sampling and analysis is used to determine the waste has a flashpoint above 100°F, the following procedures shall be used:
 1. A minimum of 10% of incoming drums shall be sampled from each incoming load. If the incoming load is less than 10 drums, a minimum of one drum shall be sampled.
 2. No compositing of samples is permitted.
 3. In the event a sample is found to have a flashpoint less than 100°F all containers received in the same shipment which contain the same waste stream shall be analyzed for flashpoint or stored in accordance with I(E)(6)(a).

All other containers shall be sampled and analyzed in accordance with the facility's approved waste analysis plan.

F. Inspection

The Permittees shall inspect each container storage area daily in accordance with the inspection schedule specified in Attachment C to this Permit. The inspection must be adequate to detect leaks and deterioration of containers and the containment system caused by corrosion or other factors. The procedures described in the approved permit application must be followed subject to the following modifications:

1. Action shall be taken to immediately overpack a leaking or deteriorating drum. Appropriate action to clean up any release of waste from a leaking or deteriorated drum shall be carried out immediately after the drum has been overpacked.
2. If a portion of the containment system as found to be in a deteriorated condition (cracks, gaps, spalling, etc.), the Permittees shall immediately remove all waste containers from the deteriorated area. No waste may be placed in the deteriorated area until the containment system has been repaired.
3. The container loading/unloading area shall be inspected daily for spills and releases. Once observed, such releases shall receive immediate attention. Results of this inspection and a description of the corrective action taken, if necessary, shall be documented in the inspection log.
4. The daily inspection shall include checking aisle spacing, height of stacks and container capacity.
5. Results of all inspections and the activities undertaken to correct deficiencies shall be documented in the facility's operating record.

G. Containment

The Permittees shall construct, operated and maintain the containment system according to the design plans and operating specifications contained in the approved permit application, subject to the following modifications.

1. The Permittees shall provide the concrete slab, the curbs, and walls that are used as containment, with an impermeable surface coating or lining that:
 - a. is compatible with the waste, or any other liquid, stored in the containment system, and
 - b. will prevent migration of the waste into the concrete of the slab, wall or curb.
2. The Permittees shall perform a complete inspection of the surface coating or lining yearly and perform annual maintenance to insure the integrity of the coating.
3. It shall not be an act of non-compliance if the coating or lining has been installed properly but does not live up to the manufacturers

printed performance standards and/or if the coating or lining fails due excessive wear or chemical breakdown. The Permittee shall notify the Agency within thirty days of becoming aware of the failure. The facility shall request modification of its permit to install a new coating or delete the coating requirement within 180 days.

4. The Permittees shall construct concrete slabs, walls and curbs that are used as containment with chemical-resistant water stops in place at all points or install a compatible caulking or sealant at each existing point. These points include but are not limited to, all construction joints within the slab, walls and curbs and joints between the slab and curb, between two curbs, between the slab or curb and wall, and joints between two walls. The water stops, caulking or sealant shall be compatible with the stored waste, or any other liquid, stored in the same containment system with the hazardous waste.

H. Special Requirements for Ignitable or Reactive Waste

1. The Permittees shall not locate containers which hold ignitable or reactive waste within 50 feet of the facility's property line.
2. The Permittees shall take precautions to prevent accidental ignition or reaction of ignitable or reactive waste.

I. Special Requirements for Incompatible Waste

1. The Permittees shall not store containers holding a material that is incompatible with any waste or other materials stored nearby, unless separated from other waste/materials or protected from them by means of a dike, berm or other devices. Incompatible materials are defined in the facility's approved waste analysis plan.

J. General Operating Requirements

The Permittees shall operate the container storage areas in accordance with the Approved Permit Application, subject to the following modifications:

1. The Permittees may receive hazardous waste for storage in containers provided the following requirements are met:
 - a. The material must be a waste which has been identified in Attachment A to this permit and the facility's current State Operating and Supplemental Permits.
 - b. The waste must be analyzed in accordance with the approved waste analysis plan.

- c. The facility must have a special waste stream permit or generic permit to receive the waste.
 - d. The waste must be accompanied by a properly completed Illinois manifest.
- 2. All containers shall be stored on pallets, elevated pads, grates, or located in an area which has been sloped to protect them from coming into contact with any accumulated liquids.
 - 3. The Permittees shall begin removal of any precipitation that accumulates in the secondary containment systems and collection sumps by the next operating shift after the precipitation event has ended.
 - 4. All hazardous and non-hazardous special wastes received or generated by this facility which require further treatment or disposal off-site must be transported to the receiving facility in accordance with the applicable regulations in 35 IAC, Parts 709, 702, 723, 307 and 309, and the Agency's Supplemental Waste Stream Permit and Manifest System.
 - 5. The Permittees shall obtain an authorization from the Agency under the provisions of Section 39(h) of the Illinois Environmental Protection Act for each hazardous wastes stream to be disposed in an Illinois permitted hazardous waste landfill prior to shipping the waste to the landfill. To obtain his authorization, the Permittee must demonstrate that, considering technological feasibility and economic reasonableness, the hazardous waste cannot be reasonably recycled for reuse, nor incinerated or chemically, physically or biologically treated so as to neutralize the hazardous waste and render it non-hazardous.
 - 6. Cleanup of all spills inside the secondary containment areas must begin immediately upon discovery and be completed within 24 hours. Secondary containment must be inspected immediately after cleanup for cracks, spalling, gaps or other defects which would allow waste to migrate to the underlying soil. If deterioration of the secondary containment system is discovered, the permittee shall immediately remove all waste from the deteriorated area. All cleanup operations shall be documented in the facility's operating record.

L. Closure

At closure, all waste and waste residues must be removed from the containment system. Remaining containers, liners, bases and soil containing or contaminated with waste or waste residue must be decontaminated or removed. Closure of the container storage area shall be

carried out in accordance with the closure plan in the Approved Permit Application, as modified below:

1. The Permittees shall notify the Agency's Division of Land Pollution Control in writing of its intent to close the container storage area at least 180 days prior to the date closure is expected to begin. Along with this notification, the Permittee shall submit the sampling and analysis plan to be used in demonstrating the storage area has been properly decontaminated. Closure shall not begin without written approval from the Agency's Division of Land Pollution Control. Agency review of this plan will be subject to the permit appeal provisions contained in Sections 39(a) and 40(a) of the Environmental Protection Act. The response from the Agency may approve and establish:
 - a. The sampling plan;
 - b. What contaminants must be analyzed for; and
 - c. The level at which decontamination is considered complete.
2. The concrete surfaces shall be visually inspected, photographed and all residue adhering to the surface must be removed by scraping and/or brushing. Following this, the concrete surfaces shall be stream cleaned and triple rinsed. All wash and rinse water shall be collected and managed as a hazardous waste. An independent, registered, professional engineer must certify that the surface has no cracks, gaps or other defects which would allow waste to migrate through to the underlying soil or an approved sampling plan must be used to establish clean closure.
3. Sweepings washwaters and rinsates collected during closure of the container storage area shall be managed as a hazardous waste. All washwater and rinsate generated during the closure of these units shall also be managed as a hazardous waste, unless the Permittee can document that the waste is not hazardous as defined in 35 IAC 721.103.
4. The Permittees shall provide post-closure care in accordance with 35 IAC 724, Subpart G for the container storage area in the event all of the hazardous wastes or contaminated soils cannot be practicably removed or decontaminated in accordance with the approved closure plan identified in Condition I(K)(1). If it is determined that the closure requirements cannot be met and post-closure care for the container storage area is required, this Permit will be modified to require post-closure care for the container storage area, in accordance with 35 IAC 724, Subparts G and H.

5. Should post-closure care, as described in Condition I(K)(4) above, become necessary, the Permittee shall submit an application for modification to this permit, including an amended closure and post-closure care plan for this unit. The application must be submitted within thirty (30) days following discovery that clean closure cannot be accomplished. If a determination is made to not pursue clean closure prior to the implementation of the closure plan for the container storage area, the modification request shall be made no later than sixty (60) days after the determination is made.
6. Financial assurance for closure and post-closure of the container storage area, if required in accordance with Condition I(K)(4) and I(K)(5) above, shall be provided within thirty (30) days following modification of the permit.
7. Within sixty (60) days after closure of the container storage area has been completed, the Permittee shall submit certification to the Agency that the unit has been closed in accordance with the approved closure plan. The closure certification form in Attachment F-1 to this permit or a certification with identical wording must be used. Signatures must meet the requirements of 35 Ill. Adm. Code. Section 702.126. The independent engineer should be present at all critical, major points (activities) during the closure. These might include soil sampling, soil removal, backfilling, final cover placement, etc. The frequency of inspections by the independent engineer must be sufficient to determine the adequacy of each critical activity. Financial assurance must be maintained for the container storage area until the Agency approves the closure certification for the unit. The Agency's review of closure certifications for partial or final closure will be conducted in accordance with 35 IAC 724.243.

A Closure Documentation Report must be submitted with the closure certification. This report must include the following information.

- a. The volume of waste and waste residue removed, including wastes resulting from decontamination activities;
- b. A description of the method of waste handling and transport;
- c. Copies of the waste manifests;
- d. A description of the sampling and analytical methods used;
- e. A chronological summary of closure activities and the cost involved;

- f. Tests performed, methods and results; and
 - g. Color photographs of closure activities which document conditions before, during and after closure.
 - h. A scale drawing of all excavated or decontaminated areas and sample locations.
8. To avoid creating another regulated storage unit during closure, it is recommended that you obtain any necessary permits for waste disposal prior to initiating excavation activities. If it is necessary to store excavated hazardous waste on-site prior to off-site disposal, do so only in containers or tanks for less than ninety (90) days. The ninety (90) day accumulation time exemption (35 IAC 722.134) only applies to containers and tanks.
9. Under the provisions of 29 CFR 1910 (51 FR 15,654, December 19, 1986), cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring, decontamination and training. General site workers engaged in activities that expose or potentially expose them to hazardous substances must receive a minimum of 40 hours of safety and health training off site plus a minimum of three days of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations.
10. If the Agency determines that implementation of this closure plan fails to satisfy the requirements of 35 IAC 724.211, the Agency reserves the right to amend the closure plan. Revisions of closure plans are subject to the appeal provisions of Section 40 of the Illinois Environmental Protection Act.
11. Please be advised that the requirements of the Responsible Property Transfer Act (Public Act 85-1228) may apply to your facility due to the management of RCRA Hazardous Waste. In addition, please be advised that if you store, or treat on-site generated hazardous waste in containers or tanks pursuant to 35 IAC 722.134, those units are subject to the closure requirements identified in 35 IAC 722.134(a)(1).

SECTION II: TANK SYSTEMS

A. SUMMARY

The Permittees may store and/or treat waste oils and solvents in 24 existing aboveground tanks prior to bulking and blending wastes before shipment off-site for supplemental fuel, solvent recovery or disposal.

The Permittees have also proposed to develop 12 aboveground tank systems for the storage, treatment of waste oils and solvents and the destruction of cyanide bearing wastes. The proposed tank systems may not be operated until the permittee has complied with the requirement of Condition II(D), "General Construction Requirements". All aboveground tank areas shall have adequate secondary containment consisting of a concrete base and an impermeable membrane or coating which has been applied to the concrete.

B. WASTE IDENTIFICATION

1. The Permittees may store a total volume of 500,936 gallons of waste (387,859 gallons existing, 113,077 gallons proposed) in the tanks listed below subject to the terms of this permit:

a. Existing Systems

<u>Tank Number</u>	<u>Capacity (Gallons)</u>	<u>Dimensions of Tank (Diameter X Height) (Inches)</u>	<u>Minimum Operating Floor Thickness (Inches)</u>	<u>Minimum Operating Shell Thickness (Inches)</u>
SF-1	8,383	128" X 158.50"	0.035	0.035
SF-2	10,497	124.25" X 200"	0.046	0.046
SF-3	10,915	126.25" X 196"	0.047	0.047
SF-4	11,129	125" X 209.50"	0.046	0.046
SF-5	8,746	125.50" X 158"	0.034	0.034
SF-6	8,297	124.25" X 155.25"	0.035	0.035
SF-7	63,206	227.25" X 356"	0.145	0.145
HT-1	63,206	227.25" X 356"	0.145	0.145
HT-2	19,626	119.50" X 404.25"	0.085	0.085
HT-3	19,553	119.50" X 402.75"	0.085	0.085
HT-4	19,699	119.50" X 405.75"	0.085	0.085
HT-5	19,772	119.50" X 407.25"	0.085	0.085
CB-1	20,956	143.50" X 326"	0.180	0.075
CB-2	21,306	143.50" X 331"	0.180	0.075
CB-3	21,026	143.50" X 327"	0.180	0.075
CB-4	20,973	143.50" X 326.25"	0.180	0.075

<u>Tank Number</u>	<u>Capacity (Gallons)</u>	<u>Dimensions of Tank (Diameter X Height) (Inches)</u>	<u>Minimum Operating Floor Thickness (Inches)</u>	<u>Minimum Operating Shell Thickness (Inches)</u>
VR-1	6,789	118.74" X 152"	0.032	0.032
VR-2	6,255	119.24" X 140"	0.032	0.032
VR-3	6,243	119.24" X 139.75"	0.032	0.032
VR-4	6,825	118.74" X 152.75"	0.032	0.032
LS-1	10,619	124.25" X 208"	0.047	0.047
			<u>Minimum Cylinder Operational Thickness</u>	<u>Minimum Torispherical Head Operating Thickness</u>
PVR-1	3,838	95.74" X 142.25"	0.053	0.053

b. Proposed Systems

<u>Tank Number</u>	<u>Capacity (Gallons)</u>	<u>Dimensions of Tank (Diameter X Height) (Feet)</u>	<u>Minimum Operating Floor Thickness (Inches)</u>	<u>Minimum Operating Shell Thickness (Inches)</u>	<u>Minimum Operating Roof Thickness (Inches)</u>
		(Feet)			
WW-1	15,000	12' X 21'	0.078	0.078	0.078
WW-2	15,000	12' X 21'	0.078	0.078	0.078
N-1	15,000	12' X 26'	0.078	0.078	0.078
WW-3	15,000	12' X 22'	0.078	0.078	0.078
CN-1	1,200	5' X 18'	0.078	0.078	0.078
CN-2	1,200	5' X 18'	0.078	0.078	0.078
CN-3	1,200	5' X 18'	0.078	0.078	0.078
CN-4	10,000	10' X 20'	0.078	0.078	0.078
CN-5	3,600	10' X 12.5'	0.078	0.078	0.078
CN-6	10,000	10' X 20'	0.078	0.078	0.078
AST	6,000	10' X 16'	0.078	0.078	0.078

<u>Tank Designation</u>	<u>Capacity (Cubic Yards)</u>	<u>Dimensions of Tank (L X W X H)</u>	<u>Material of Construction</u>	<u>Floor and Shell Thickness</u>	<u>Wall Thickness</u>
ULT	9.48	8'x8'x4'	Concrete	8.0"	8.0"

2. The Permittees may store and treat only the wastes identified in Attachment A to this permit and specifically identified in the facility's current Supplemental Permit (Permit Number 1986-116-SP).
3. Storage of waste in tanks other than those specifically identified in II(B)(1) is prohibited.
4. The Permittees are prohibited from adding additional waste storage or waste treatment tanks without permit modification(s) in accordance with 35 IAC 703. Appendix A.

C. CONTAINMENT AND DETECTION OF RELEASES

1. The Permittees shall construct, operate, and maintain the tank system according to the detailed plans and reports contained in the approved permit application.
2. The Permittees shall install leak detection on all existing tanks as described in the approved permit application no later than January 12, 1995.
3. For each tank that does not meet the secondary containment requirements defined in 35 IAC 724.293, the Permittee shall comply with the following:
 - a. For all tanks, an internal inspection and thickness test shall be conducted by an independent, qualified registered professional engineer licensed to practice in the State of Illinois no later than December 31, 1993 and every year thereafter. The procedure must be adequate to detect obvious cracks and leaks. The Permittee shall remove the stored waste from the tank to allow the condition of all internal tank surfaces to be assessed. Results shall be placed in the facility's operating record. In the event the assessment indicates the tank will fail prior to the next scheduled inspection, the next inspection shall be rescheduled to take place no later than 90 days prior to the expected failure date.
 - b. For ancillary equipment, a leak test or other integrity assessment, as approved by the Agency, shall be conducted annually by an independent, qualified, registered professional engineer licensed to practice in the State of Illinois. The results shall be placed in the facility's operating record.

- c. If a tank system or component is found to be leaking or unfit for use as a result of the leak test and assessment, the Permittees shall prevent flow or addition of wastes to the tank system, remove the waste from the tank system or the secondary containment system, contain all visible releases to the environment and notify the Agency in accordance with Condition II(H) of this permit.
 - d. The Permittees shall maintain a record of the results of the assessments conducted in accordance with Conditions II(C)(3)(a) through II(C)(3)(b) on file at the facility.
- 4. As-Built plans and specifications for the tank systems are contained in Section D.4 of the Approved Permit Application. Any modifications to the ancillary equipment or secondary containment system of a tank system must meet the requirements of 35 IAC 724.293. Details of these modifications shall be submitted to the Agency for written approval prior to actually modifying a tank system. Such written approval shall be provided by the Agency within sixty (60) days after the proposed modification meeting the requirements of 35 IAC 724.293 is received. Agency review of the proposed modifications will be subject to the permit appeal provisions contained in Sections 39(a) and 40(a) of the Environmental Protection Act. As built plans of the modifications shall be submitted to the Agency within thirty (30) days after the modification has been completed.
- 5. The Permittees shall provide the concrete slab, the curbs, and walls that are used as containment, with an impermeable surface coating or lining that:
 - a. is compatible with the waste, or any other liquid, stored in the containment system, and
 - b. will prevent migration of the waste into the concrete of the slab, wall or curb.
- 6. The Permittees shall perform a complete inspection of the surface coating or lining yearly and perform annual maintenance to insure the integrity of the coating.
- 7. It shall not be an act of non-compliance if the coating or lining has been installed properly but does not live up to the manufacturers printed performance standards and/or if the coating or lining fails due excessive wear or chemical breakdown. The Permittee shall notify the Agency within thirty days of becoming aware of the failure. The facility shall request modification of its permit to install a new coating or delete the coating requirement within 180 days.

8. The Permittees shall construct concrete slabs, walls and curbs that are used as containment with chemical-resistant water stops in place at all points or install a compatible caulking or sealant at each existing point. These points include but are not limited to, all construction joints within the slab, walls and curbs and joints between the slab and curb, between two curbs, between the slab or curb and wall, and joints between two walls. The water stops, caulking or sealant shall be compatible with the stored waste, or any other liquid, stored in the same containment system with the hazardous waste.

D. GENERAL CONSTRUCTION REQUIREMENTS

1. The Permittees are authorized to construct all proposed tank systems listed in Condition II(B)(1)(b) (including all tanks, ancillary equipment and secondary containment). These tank systems may only be constructed in accordance with the approved permit application, subject to the following modifications:
 - a. Thirty days after completing construction and prior to any waste being placed or stored in a tank or its corresponding ancillary equipment, the Permittee shall submit to the Agency a certification from an independent qualified, registered professional engineer. This certification must demonstrate that the tank system meets the requirements of 35 IAC 724.292. The certification shall contain the information described in Attachment G and the additional information listed below:
 1. A report documenting that the new tank system was inspected for the presence of the following items:
 - i. Weld breaks;
 - ii. Punctures;
 - iii. Scrapes of protective coatings;
 - iv. Cracks;
 - v. Corrosion;
 - vi. Other structural damage or inadequate construction/installation.

All defects noted during this inspection must be remedied prior to covering, enclosing, or placing the tank system in use.

2. A copy of the leak test (hydrostatic test) performed on all of the new tanks and ancillary equipment, including a description of any repairs performed on the system to remedy the leak(s).
 3. Certification that the tanks and ancillary equipment were designed and installed in a manner that is supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.
- b. Within thirty days after completing construction and prior to any waste being stored or treated in the tanks, the Permittees shall submit to the Agency a certification from a qualified, registered professional engineer, demonstrating that the secondary containment areas meets the requirements of 35 IAC 724.275(b). This certification document shall contain the information required in Attachment G and a statement that the base slab is free of cracks or gaps.
 - c. The Permittees may not store wastes in these tanks prior to providing the certification required in Conditions II(D)(1)(a) and II(D)(1)(b).

E. GENERAL OPERATING REQUIREMENTS

1. The Permittees shall not place hazardous wastes in a tank system if it could cause the tank, its ancillary equipment, or the containment system to rupture, leak, corrode, or otherwise fail.
2. The Permittees shall use appropriate controls and practices to prevent spills and overflows from the tank or containment systems using the methods specified in the approved permit application, subject to the following modifications:
 - a. All hazardous waste storage tanks shall be equipped with automatic waste feed shut-off valves connected to the continuously monitored liquid-level sensors which are activated when the tank is 95% full; or
 - b. All hazardous waste storage tanks shall be equipped with audible alarms which are activated when the tank is 80% full.
 - c. The Permittees shall comply with these requirements in accordance with the following schedule:
 - i. All existing tanks must be modified to comply with either Condition II(E)(2)(a) or II(E)(2)(b) no later than

December 31, 1993. Until each tank complies with Condition II(E)(2)(a) or II(E)(2)(b), the Permittees shall insure that an observer is standing by the level indicator during the filling of the tank. The observer shall monitor the tank level indicator in accordance with the procedures identified below, notify the pump operator, by voice or radio, when the tank has reached 95% capacity, and direct the operator to cease pumping.

1. The Permittees shall take inventory of the tanks prior to pumping any waste materials into the hazardous waste storage tanks to insure that adequate capacity is available to accommodate the volume of the compartment to be emptied from the tank truck. In the event the calculated volume of waste to be pumped into the storage tank will fill to beyond 80% of the tanks total capacity, the tank shall be monitored continuously during the filling process.
 2. Upon starting the pump, the operator shall observe the level indicator to make sure it functions (rises or falls) properly.
 3. Upon pumping an entire compartment into the tank, repeat the inventory procedure identified in II(E)(2)(c)(i)(1) to verify available capacity prior to pumping more waste.
 4. Upon completion of loading the Permittee shall take final inventory of the tank.
 5. In the event that the tank is eighty (80) percent full, the tank shall be monitored continuously during loading (a maximum of 95% capacity) to prevent overfilling of the tank(s).
- ii. All new tanks must comply with either Condition II(E)(2)(a) or II(E)(2)(b) prior to being put into service.
3. In the event of a leak or a spill in the tank system, the Permittees shall comply with the practices and procedures described in the approved permit application, and notify the Agency's DLPC in accordance with Condition II(H)(1). All reported leaks or spills must be recorded in the Facility's Operating Record.

4. The Permittees shall obtain a supplemental waste stream permit or generic permit from the Division of Land Pollution Control of this Agency for each hazardous waste, prior to accepting it at the facility for storage and subsequent treatment. All hazardous wastes accepted at the site for storage or treatment in tanks shall be accompanied by a properly completed Illinois manifest.
5. The Permittees shall analyze each waste stream in accordance with the waste analysis procedures set forth in this permit and the approved permit application.
6. The Permittees shall transfer all waste received at the facility to the on-site storage tanks as soon as practicable.
7. The Permittees shall begin removal of any precipitation that accumulates in the secondary containment systems by the next operating shift after the precipitation event has ended.
8. All hazardous and non-hazardous special wastes generated by this facility and transported off-site for recycling, treatment or disposal must be transported in accordance with the supplemental waste stream permit and Illinois manifest system, the applicable regulations in 35 IAC, Parts 709, 722, 723, 807 and 809, and the conditions of the applicable waste stream permits.
9. An employee of the facility shall be present at all times when waste is being transferred from a tank truck to the receiving tank.
10. The permittee shall install cyanide detectors in the following locations:
 - a. Above each cyanide reactor (tanks CN-1, CN-2 and CN-3)
 - b. 4 locations around the Bulk Solids unloading area (ULT)
 - c. Outside of the Facility, within the boundaries of the lease.
8. The Permittees shall obtain an authorization from the Agency under the provisions of Section 39(h) of the Illinois Environmental Protection Act for each hazardous waste stream destined for disposal in a Illinois permitted hazardous waste landfill prior to shipping the waste to the landfill. To obtain this authorization, the generator must demonstrate that, considering technological feasibility and economic reasonableness, the hazardous waste cannot be reasonably recycled for reuse, nor incinerated or chemically,

physically or biologically treated so as to neutralize the hazardous waste and render it nonhazardous.

G. RESPONSE TO LEAKS OR SPILLS

In the even of a leak or a spill from the tank system, from a secondary containment system, or if a system becomes unfit for continued use, the Permittees shall remove the system from service immediately and complete the following actions: [35 IAC 724.296(a)-(f)]

1. Stop the flow of hazardous waste into the system and inspect the system to determine the cause of the release.
2. Remove waste from the system within 24 hours of the detection of the leak to prevent further release and to allow inspection and repair of the system. If the Permittees find that it will be impossible to meet this time period, the Permittees shall notify the Agency and demonstrate that the longer time period is required. If the collected material is a RCRA hazardous waste, it must be managed in accordance with all applicable requirements of 35 IAC Parts 722-724.
3. Contain visible releases to the environment. The Permittee shall immediately conduct a visual inspection of all releases to the environment and based on that inspection: (1) prevent further migration of the leak or spill to soils or surface water and (2) remove and properly dispose of any visible contamination of the soil or surface water.
4. Close the system in accordance with the Closure Plan, contained in the approved Permit Application, unless the following actions are taken:
 - a. For a release caused by a spill that has not damaged the integrity of the system, the Permittees shall remove the released waste and make any necessary repairs to fully restore the integrity of the system before returning the tank system to service.
 - b. For a release caused by a leak from the primary tank system to the secondary containment system, the Permittees shall repair the primary system prior to return it to service.

H. TANK SYSTEM CERTIFICATION

1. The Permittees shall obtain and keep a copy of the certification of the design and installation of the new tank systems on file at the facility.

2. The Permittees shall obtain and keep a copy of the written assessment of the existing tank system's integrity on file at the facility. The assessment shall be certified by an independent, qualified registered professional engineer.

I. INSPECTIONS

1. The owner or operator must inspect the following items in accordance with the inspection schedule in Attachment C to this permit. The inspection schedule in the approved application has been approved as modified below:
 - a. Overfilling control equipment (e.g., waste feed cut-off systems and by-pass systems) at least once each operating day to ensure that it is in good working order;
 - b. Data gathered from monitoring equipment (e.g., pressure and temperature gauges) where present, at least once each operating day to ensure that the tank is being operated accordance to its design;
2. The Permittees shall inspect the safety and emergency equipment, security devices, and operating and structural equipment present at the facility, in accordance with the inspection schedule contained in Attachment C to this permit.
3. The Permittees shall inspect the following items associated with the tank systems at least once each operating day:
 - a. Aboveground portions of the tank system, to detect corrosion or release of waste;
 - b. The construction materials and the area immediately surrounding the externally accessible portion of the tank systems, including the secondary containment system, to detect erosion or signs of hazardous waste releases;
 - c. The ancillary equipment associated with each tank system to ensure that it is not leaking, and the area surrounding the equipment for evidence of releases due to leaks.

If a leak or spill is observed during the daily inspections, the Permittee shall immediately remove the tank system in question from service and follow the procedures set forth in 35 IAC 724.296.

4. The Permittees shall begin removal of any precipitation that accumulates in the secondary containment systems by the end of the next operating shift after the precipitation event has ended.
5. Releases of hazardous waste from spills and leaks which are observed in the secondary containment system shall also be removed within the same operating shift and managed as a hazardous waste.
6. The bulk liquid unloading area shall be inspected in the following manner:
 - a. The area shall be inspected after each truck has been unloaded for the presence of spills and releases. If observed, such releases shall be cleaned up immediately.
 - b. The area shall be inspected on a weekly basis for deterioration of the containment system. If any portion of the system is found to be in a deteriorated condition, action shall be taken to (1) prevent further deterioration and (2) repair the deteriorated area.

Documentation of these inspections and any corrective actions taken shall be included in the operating record for the facility.

7. The Permittees shall inspect the existing and new tanks every year to assess their condition. This inspection shall include the procedures described in the approved permit application, subject to the following modifications:
 - a. An annual ultrasonic thickness test.
 - b. An interior visual inspection shall be conducted at least every five (5) years. During this inspection, the interior surface shall be inspected for indentations, cracks, corrosion, weld breaks, again, and thin areas. Corrective action, as specified by the manufacturer of these tanks, shall be taken if the internal inspection indicates that the interior surface of a tank system has been detrimentally affected by the hazardous wastes which have been stored in it.
 - c. Tanks shall be entered in accordance with 29 CFR 1910.94(d)(11).
 - d. A leak test or other integrity assessment as approved by the Agency shall be conducted annually on all ancillary equipment which cannot be inspected daily.

- e. The inspection of each tank system shall be conducted by a qualified, independent registered professional engineer, or a certified corrosion expert.
- f. All waste and washwater generated during evacuation of a tank shall be managed as a special waste.
- g. The inspection procedures and results of the inspection shall be placed in the operating record of this facility.
- h. The procedures set forth in 35 IAC 724.296 shall be followed if the results of these inspections indicate a tank system is leaking.
- i. Appropriate action shall be taken if excessive corrosion or deterioration of a tank is observed, in accordance with 35 IAC 724.296.
- j. All permitted tanks must be inspected in accordance with the following compliance schedule:
 - 1. All existing tanks must be inspected by December 31, 1993 and every year thereafter.
 - 2. New tanks shall be inspected in accordance with 724.292(b) prior to placing the tank into service and every year thereafter, in accordance with the procedures required by Conditions II(I)(7)(a) through II(I)(7)(i).

J. REPORTING AND RECORDKEEPING

- 1. The Permittees shall report all leaks or spills which occur in the tank system or secondary containment system to the Agency within 24 hours, in accordance with the requirement of 35 IAC 724.296(d), and record any release in the facility's operating record.
- 2. Within thirty (30) days of detecting a release to the environment from the tank system or secondary containment system, the Permittees shall report the following information to the Agency:
 - a. Likely route of migration of the release;
 - b. Characteristics of surrounding soil (including soil composition, geology, hydrogeology and climate);
 - c. Results of any monitoring or sampling conducted in connection with the release;

- d. Proximity to downgradient drinking water, surface water and populated areas; and
 - e. Description of response actions taken or planned.
3. The Permittees shall submit to the Agency all certifications of major repairs to correct leaks within seven days from returning the tanks system to use (35 IAC 724.296(f)).

K. SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTES

- 1. The Permittees shall not place ignitable waste or reactive waste in the tank systems unless the procedures specified in the Approved Permit Application are followed.
- 2. The Permittees shall comply with the requirements for the maintenance of protective distances between the waste management area and any public ways, streets, alleys, or an adjoining property line that can be built upon as required in Tables 2-1 through 2-6 of the National Fire Protection Association's "Flammable and Combustible Liquids Code". [40 CFR 264.198(b)]
- 3. The Permittees shall not place reactive wastes as identified in 35 IAC 721.123(a)(1) through (4) and (6) through (8) in any tank system wastes identified as D003 in accordance with 35 IAC 721.123(a)(5) may be placed in tanks identified in II(B)(1) in accordance with the approved permit application.

L. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES

- 1. The Permittees shall not place incompatible wastes, or incompatible wastes and materials, in the same tank system, unless the procedures specified in the Approved Permit Application are followed.

Incompatible wastes or materials must not be placed in the same tank system unless precautions are taken to prevent reactions which:

- a. Generate extreme heat or pressure, fire or explosions, or violent reactions;
- b. Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment;
- c. Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions;

- d. Damage the structural integrity of the device or facility; or
- e. Through other like means, threaten human health or the environment. The basic methods for preventing such reactions are to:
 - i. Treat one or both of the incompatible wastes/materials to render them compatible prior to placing them in the tank system; or
 - ii. Physically separate the incompatible wastes/materials in the tank system so that it is not possible for the incompatible wastes/materials to come in contact with each other.
- 2. Incompatible wastes shall not be stored in tanks located within the same secondary containment system unless the tanks are separated by a dike or berm.
- 3. The Permittee shall not place hazardous waste in a tank system that has not been decontaminated and that previously held an incompatible waste or material, unless the requirements of approved permit application are met.

M. CLOSURE

At closure, all waste and waste residues must be removed from tanks, discharge control equipment and discharge confinement structures. The remaining tanks, containment systems, bases and soil containing or contaminated with waste or waste residue must be decontaminated or removed. Closure of the tank storage area shall be carried out in accordance with the closure plan in the Approved Permit Application, subject to the following modifications:

- 1. The Permittees shall notify the Agency's Division of Land Pollution Control in writing of its intent to close the tank system at least 180 days prior to the date closure is expected to begin. Along with this notification, the Permittees shall submit the sampling and analysis plan to be used in demonstrating that the tank system has been properly decontaminated. This plan must not be implemented prior to approval by the Agency's Division of Land Pollution Control. Agency review of this plan will be subject to the permit appeal provisions contained in Sections 39(a) and 40(a) of the Environmental Protection Act. The response from the Agency may approve and establish:
 - a. The sampling plan;

- b. What contaminants must be analyzed for; and
 - c. The level at which decontamination is considered complete.
2. The concrete surfaces shall be visually inspected, photographed and any residue adhering to the surface must be removed by scraping and/or brushing. Following this, the concrete surfaces must be steam cleaned and triple rinsed. All wash and rinse water shall be collected. For new secondary containment systems which meet the requirements of 35 IAC 724.293 at the time of installation the secondary containment must be certified by an independent, registered, professional engineer indicating that the surface has no cracks, gaps or other defects which would allow waste to migrate through to the underlying soil. If such a certification cannot be made, soil sampling and analysis must be conducted to establish clean closure.
 3. Sweepings, washwaters and rinsates collected during closure of any tank system shall be managed as a hazardous waste. All washwater and rinsate generated during the closure of these units shall also be managed as a hazardous waste, unless the facility can document that it is not hazardous as defined in 35 IAC 721.103.
 4. Subject to Condition II(M)(1) above, all samples shall be analyzed individually (i.e., no compositing). Sampling and analytical procedures shall be conducted in accordance with the latest edition of SW-846 and Attachment G to this Agency's closure plan instruction package. Sample size per interval shall be minimized to prevent dilution of any contamination. Apparent visually contaminated material within a sampling interval shall be included in the sample portion of the interval to be analyzed. To demonstrate a parameter is not present in a sample, analysis results must show a detection limit at least as low as the PQL for that parameter as identified in the latest edition of SW-846.
 5. The Permittees shall provide post-closure care in accordance with 35 IAC Part 724 for a tank system if all of the hazardous wastes or contaminated soils cannot be practicably removed or decontaminated in accordance with the closure requirements outlined in this permit and in the approved closure plan. If it is determined that the closure requirements cannot be met and post-closure care is required, the tank system shall be considered to be a landfill and this Permit will be modified to require post-closure care for the affected tank system(s) in accordance with 35 IAC, 724, Subparts G and H.

6. Should post-closure care, as described in Condition II(M)(5) above, become necessary, the Permittees shall submit an application for modification to this permit, including an amended closure plan and a post-closure care plan for the affected tank system within thirty (30) days following discovery that clean closure cannot be accomplished. If a determination is made not to pursue clean closure cannot be accomplished. If a determination is made not to pursue clean closure prior to the implementation of the closure plan for the tank system, the modification request shall be made no later than sixty (60) days after the determination is made.
7. Financial assurance for closure and post-closure of any tank system being closed as a landfill, when required in accordance with Conditions II(M)(5) and (6) above, shall be provided within thirty (30) days following modification of the permit under the provisions of Condition II(M)(6) above.
8. Within sixty (60) days after closure of any tank system is complete, the Permittee shall submit certification to the Agency that the unit has been closed in accordance with the approved closure plan.

The closure certification form in Attachment F to this permit or a certification with identical wording must be used. Signatures must meet the requirements of 35 IAC 702.126. The independent engineer should be present at all critical, major points (activities) during the closure. These might include soil sampling, soil removal, backfilling, final cover placement, etc. The frequency of inspections by the independent engineer must be sufficient to determine the adequacy of each critical activity. Financial assurance must be maintained for each tank system identified in Condition B.1 above. Documents regarding financial assurance for closure of this facility may be modified after the Agency approves the closure certification for any or all of the tank systems. The Agency's review of closure certifications for partial or final closure will be reviewed in accordance with 35 IAC 724.243.

A Closure Documentation Report is to be submitted with the closure certification which includes the following items, if applicable:

- a. The volume of waste and waste residue removed, including wastes generated during decontamination procedures.
- b. A description of the method of waste handling and transport.
- c. Copies of the waste manifests.
- d. A description of the sampling and analytical methods used.

- e. A chronological summary of closure activities and the cost involved.
 - f. Tests performed, methods and results.
 - g. Color photographs of closure activities which document conditions before, during and after closure.
 - h. A scale drawing of all excavated or decontaminated areas and sample locations.
9. To avoid creating another regulated storage unit during closure, obtain any necessary permits for waste disposal prior to initiating excavation activities. If it is necessary to store excavated hazardous waste on-site prior to off-site disposal, do so only in containers or tanks for less than ninety (90) days. Do not create regulated waste pile units by storing the excavated hazardous waste in piles. The ninety (90) days accumulation time exemption (35 IAC 722.134) only applies to containers and tanks.
10. Under the provisions of 29 CFR 1910 (51 FR 15,654, December 19, 1986), cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring, decontamination and training. General site workers engaged in activities that expose or potentially expose them to hazardous substances must receive a minimum of 40 hours of safety and health training off site plus a minimum of three days of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations.
11. If the Agency determines that implementation of this closure plan fails to satisfy the requirements of 35 IAC 724.211, the Agency reserves the right to amend the closure plan. Revisions of closure plans are subject to the appeal provisions of Section 40 of the Illinois Environmental Protection Act.
12. Please be advised that the requirements of the Responsible Property Transfer Act (Public Act 85-1228) may apply to your facility due to the management of RCRA hazardous waste. In addition, please be advised that if you store or treat on-site generated hazardous waste in containers or tanks pursuant to 35 IAC 722.134, those units are subject to the closure requirements identified in 35 IAC 722.134(a)(1).

SECTION III: STABILIZATION UNIT

A. SUMMARY

1. The Permittees may treat the hazardous waste codes identified in Attachment A by stabilization, solidification or chemical fixation in the pug mill to meet applicable land disposal restrictions.

Proposed System	Description
Pug Mill System	One (1) Davis Model 500 Pugmill with a rated capacity of 100 tons per hour with three (3) dry solids weigh feeders and all other necessary pumps, sumps, piping and appurtenances. Unit dimensions are 7'6"W x 20'6"L x 21'H.

2. The facility cannot accept wastes for stabilization which exhibit a characteristic of ignitability or reactivity.
3. The facility cannot accept wastes containing over 2% (by weight) of mercury.
4. The facility cannot accept wastes for treatment in this unit containing parameters above land ban restrictions (i.e. the waste has treatment standards which are in effect at the time of treatment) whose BDAT as identified in 40 CFR 268 or 35 IAC 724 is not based on stabilization (i.e. cyanide, organics, etc.)

B. PERFORMANCE STANDARDS

The Permittees shall meet all applicable land ban restrictions (based on metal standards) for the waste code. Prior to disposal, the Permittees shall have on file the required results demonstrating compliance with all applicable portions of the land ban restrictions (i.e. F006 must have results demonstrating compliance with metals and cyanide).

C. WASTE ANALYSIS

1. Treated waste subject to the land disposal restrictions of 40 CFR 268 and/or 35 IAC 728 shall be managed in accordance with the following procedures:
 - a. The treated waste shall not be sent for landfill disposal until it has been demonstrated that the applicable land disposal restrictions are met.

- b. Until such time as the analyses necessary to demonstrate compliance with these restrictions are completed, the treated waste shall be stored. Wastestreams subject to different Land Disposal Restrictions shall be stored in separate containers until it is demonstrated that the wastes have each passed the treatment standards applicable to each specific wastestream.
 - c. The container(s) may contain waste generated over more than one day of operation. For compliance with the land disposal restrictions, the same waste code from different generators shall not be placed in the same container unless the demonstration of Condition III(C)(3) is performed.
 - d. Once the samples required for the demonstration have been obtained and the wastes represented by these samples have been placed in a container(s), no new wastes may be added to the container(s) and a new container(s) for the waste of concern must be started.
2. Compliance with the Land Disposal Restrictions for a waste stream, containing one or more waste codes from a single generator shall be demonstrated in the following manner:
- a. To comply with the initial demonstration a representative sample (i.e. a grab sample) shall be collected from the first twenty (20) (40 cubic yard roll-off boxes or equivalent) to demonstrate compliance with individual containers the Land Disposal Restrictions.
 - b. A waste stream is material generated from specific processes by individual generating companies. Materials from different processes from the same generator are not the same waste stream. Additionally, a group of containers which failed to meet the Land Disposal Restrictions for the applicable waste code(s) for the specific waste stream shall become a separate distinct waste stream.
 - c. After the completion of the Initial Demonstration required in Condition III(C)(2)(d), and over a defined processing period, a minimum of two samples shall be collected and analyzed for each treated waste stream. The defined processing period shall be equivalent to a maximum of 10 containers (40 cubic yard roll-off boxes). The analyses performed on these samples shall include the parameters specific to the Land Disposal Restrictions for the pertinent waste code(s).

- d. The Initial Demonstration of compliance with the Land Disposal Restrictions shall include the sampling and analyses of the first twenty (20) treated containers (40 cubic yard roll-off boxes or equivalent) of the waste stream. The analyses on these first twenty samples shall include the parameters specific to the Land Disposal Restrictions for the pertinent waste code(s).
- e. After the collection of the results required in III(C)(2)(d) above, the permittee may reduce the sampling frequency to the first and last batches respectively in any group of containers (maximum of 10 containers (40 cubic yard roll-off boxes)) for which compliance is to be determined.
- f. The results of the sampling required in Condition III(C)(2)(d) shall be submitted to this Agency within 30 days after the completion of the analysis of the samples.
 - 1. The Agency will review the data, and may, through a letter, notify the Permittee of the required frequency of analysis to demonstrate compliance with the Land Disposal Restrictions if the review of the data submitted indicates a more or less frequent sampling interval is warranted.
 - 2. Pending the Agency's review of the data, the Permittees shall follow the sampling frequency per Condition III(C)(2)(e).
- g. If the treatment standard for a constituent is exceeded:
 - 1. Each container which is included in the first batch / last batch sequence shall be analyzed for the constituent(s) causing the failure. The Permittees shall then conduct an investigation to determine the cause of the failure. A plan shall then be developed and implemented to prevent and/or minimize future excursions.
 - 2. Treated waste which fails to meet the requirements shall require additional treatment. Wastes which receive additional treatment may only be sent for disposal after it has been demonstrated that the residue meets the appropriate treatment standards.
- 3. Compliance with the Land Disposal Restrictions for mixed waste streams, containing one or more waste codes, from multiple generators shall be demonstrated in the following manner:
 - a. To comply with the initial demonstration, a representative sample (i.e. a grab sample) shall be collected from the first

twenty (20) individual containers (40 cubic yard roll-off boxes) to demonstrate compliance with the Land Disposal Restrictions.

- b. After the completion of the Initial Demonstration specified in Condition III(C)(3)(c), and over a defined processing period, a minimum of two samples shall be collected and analyzed. The defined processing period shall be equivalent to a maximum of ten (10) containers (40 cubic yard roll-off boxes). The analyses performed on these samples shall include the parameters specific to the Land Disposal Restrictions for all of the waste codes which are applicable to the mixture of waste streams.
- c. The Initial Demonstration of compliance with the Land disposal Restrictions shall include the sampling and analyses of the first twenty (20) treated containers (40 cubic yard roll-off boxes) which represent the treatment of multiple waste streams. The analyses on these first twenty (20) samples shall include the parameters specific to the Land Disposal Restrictions for the all of the pertinent waste codes.
- d. The demonstration of compliance with the Land Disposal Restrictions for the mixture of waste streams shall be based on the most stringent treatment standard for each of the pertinent parameters.
- e. After the collection of the results required in Condition III(C)(3)(c), the Permittees may reduce the sampling frequency to one sample from the first and last containers in any group of containers (40 cubic yard roll-off boxes) (maximum of 10) for which compliance is to be determined.
- f. The results of the sampling required in Condition III(C)(3)(c) shall be submitted to this Agency within 30 days after the completion of the analysis of the samples.
 - 1. The Agency will review the data, and may, through a letter, notify the Permittee of the required frequency of analysis to demonstrate compliance with the Land Disposal Restrictions if the review of the data submitted indicates a more frequent or less frequent sampling frequency is warranted.
 - 2. Pending the Agency's review of the data, the Permittees shall follow the sampling frequency per Condition III(C)(3)(e).

- g. If the treatment standard for a constituent is exceeded:
1. Each container which is included in the first batch / last batch sequence shall be analyzed for the constituent(s) causing the failure. The Permittees shall then conduct an investigation to determine the cause of the failure. A plan shall then be developed and implemented to prevent and/or minimize future excursions.
 2. Treated waste which fails to meet the requirements shall require additional treatment. Wastes which receive additional treatment may only be sent for disposal after it has been demonstrated that the residue meets the appropriate treatment standards.
4. Wastes which require additional treatment to meet either LDR or delisting standards shall be stored in identifiable containers until they are placed in a tank for retreatment.
5. If the treatment of wastes is changed to exclude listed wastes and to process characteristic wastes exclusively the tanks (i.e., the waste storage tanks, the blenders, and all associated waste transfer appurtenances) or mixing boxes shall be completely emptied (i.e., as much waste as possible shall be removed) prior to reintroducing listed wastes. The pug mill will be considered empty when it contains no more than 3% (by weight) of the waste that was initially in the unit. Documentation of this cleaning effort shall be placed in the Operating Record for the facility.
6. All stabilized/solidified/chemically fixated hazardous wastes sent off site for disposal in the State of Illinois shall be tested by the penetrometer test after treatment. No wastes which fails to possess a load bearing capacity of at least 2.0 tons per square foot (TSF) may be sent for disposal in the State of Illinois.

D. INSPECTION

1. The permittee shall inspect the stabilization unit area daily, in accordance with the general inspection schedule, Attachment C, to detect leaks and deterioration of the units.
2. The areas where waste is handled within the stabilization building (unloading area, mixing area, loading area, areas trafficked in transporting waste to and from the mixing unit (i.e., conveyor) shall be inspected at the end of each operating shift. Any waste residue observed on the floor shall be cleaned up immediately. Any spills

which occur during the treatment process or during the movement of waste within the facility shall be responded to immediately in accordance with the contingency plan. Documentation of each inspection and spill incident shall be placed in the operating record.

3. The areas heavily trafficked during transport of waste to and from the mixing unit shall be cleaned at the end of each eight hour operating shift, in accordance with the following procedures:
 - a. Operation of the stabilization facility shall cease during the required cleanup activities;
 - b. The areas of concern shall be cleaned through use of a pressure washer or steam cleaner.
 - c. Documentation of the cleaning activities shall be placed in the operating record of this facility;
4. The areas where waste is handled within the stabilization building shall be inspected at the end of each operating shift. Any waste residue observed on the floor shall be cleaned up immediately in accordance with the procedures in the contingency plan. Documentation of each inspection and spill incident shall be placed in the operating record.

E. RESPONSE TO LEAKS OR SPILLS

1. In the event of a leak or a spill from the stabilization unit, or if a unit becomes unfit for continued use, the Permittees shall remove the system from service immediately and complete the following actions:
 - i. Appropriate action to clean up any release of waste from the miscellaneous unit shall be carried immediately after removing the system from service.
 - ii. Remove all waste from the system within 24 hours of the detection of the leak or spill to prevent further releases and to allow inspection and repair of the system.
 - iii. Determine the cause of the release.
 - iv. Make any necessary repairs to fully restore the integrity of the system before returning the unit to service.
 - v. All wastes resulting from the cleanup of a spill or leak shall be managed as a hazardous waste.

2. If a potable water supply is to be used as a slurring agent, a break tank shall be provided. Water shall be discharged to the break tank through an air-gap at least 6 inches above the maximum flood line or the spill line of the tank. The installation of this system must meet all applicable plumbing codes.

F. REPORTING AND RECORDKEEPING

1. The Permittees shall report leaks and spills to the Agency's Division of Land Pollution Control Field Office in a manner consistent with 35 IAC 724.296(d).
2. The Permittees shall submit to the Agency all certifications of major repairs to correct leaks within seven days from returning the tank system to use (35 IAC 724.296(f)).
3. The actions required by conditions (III)(F)(1) and (III)(F)(2) shall be placed in the facility's operating record.
4. The following items shall be documented in the operating record for the facility regarding each load of waste received for stabilization/solidification/chemical fixation:
 - a. Time and date that each waste load is received;
 - b. Permit number and manifest number associated with the waste;
 - c. Waste name, generator name and location (including the USEPA and IEPA identification number);
 - d. Volume of waste received;
 - e. Identification of the receiving area (container storage area) where the incoming waste is placed;
 - f. Information pertaining to the actual treatment process, including:
 - i. The time and date when each waste load is treated in the blenders;
 - ii. The amount of reagent material added to the waste in the blending unit (mass per mass or mass per volume basis);
 - iii. Length of time after treatment of the treated waste is subjected to the paint filter test, the penetrometer test and any additional tests;

5. For any wastes stored in containers at the facility prior to disposal, the requirements listed below must be followed:
- a. Treated waste may be stored in a container for no more than ninety (90) days.
 - b. A tarpaulin shall be placed over each container and tightly secured immediately after the container has been filled with treated waste. The tarpaulin shall remain in place at all times, except when collecting waste samples, until such time as the waste is to be disposed in the landfill.
 - c. A label contained in the words "Hazardous Waste" shall be placed on each container utilized to temporarily store treated waste. An alternative, each container may be clearly marked with the words "Hazardous Waste".
 - d. The following information must be clearly marked on each container:
 - i. Date when the waste was placed in the container;
 - ii. Generator of the waste placed in the container;
 - iii. Name and EPA Hazardous Waste Number of the waste placed in the container.
 - e. A record of the information identified below must be maintained regarding wastes stored in containers. This information must be placed in the operating record of the facility:
 - i. The location (in or around the stabilization facility) where each container of waste is stored;
 - ii. The waste code and waste name of the waste in each container;
 - iii. Information pertaining to each waste stream present in each container (authorization number, manifest number, generator and volume of waste).
 - f. Management of all containers utilized for storage of treated water must be in accordance with 35 IAC 722.134.
 - g. The areas where containers of treated waste are stored shall be inspected daily for releases of waste and deterioration of the containers. Any releases of waste observed during these inspections shall be responded to immediately.

G. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES

1. The Permittees shall not perform stabilization on incompatible wastes.
2. Incompatible wastes shall not be mixed in roll off boxes or in the mixing unit. The waste manifest information as well as any Special Waste Stream Permit application analysis for the waste(s) last placed in a container (40 cubic yard roll-off box) or mixing unit shall be compared to the same type of information for the waste to be added to the area. In addition, the gate control procedures specified in the approved permit application must also be carried out. If it is determined that the wastes are incompatible, the receiving bay or mixing unit shall be decontaminated prior to placing the new waste in it.

H. CLOSURE

At closure, all waste and waste residues must be removed from miscellaneous units. Closure of the stabilization unit shall be carried out in accordance with the closure plan in the approved permit application, as modified below:

1. The Permittees shall notify the Agency's Division of Land Pollution Control in writing of its intent to close these units at least 180 days prior to the date closure is expected to begin. Along with this notification, the Permittees shall submit the sampling and analysis plan to be used in demonstrating that these units have been properly decontaminated. The plan shall be approved by the Agency's Division of Land Pollution Control in writing prior to being implemented. Agency review of this plan will be subject to the permit appeal provisions contained in Sections 39(a) and 40(a) of the Illinois Environmental Protection Act. The response from the Agency shall approve and establish:
 - a. The sampling plan;
 - b. What contaminants must be analyzed for; and
 - c. The level at which decontamination is considered complete.
2. The concrete surfaces shall be visually inspected, photographed and any residue adhering to the surface must be removed by scraping and/or brushing. Following this, the concrete surfaces must be steam cleaned and triple rinsed. All wash and rinse water shall be collected. For new secondary containment systems which meet the requirements of 35 IAC 724.293 at the time of installation the secondary containment must be certified by an independent,

registered, professional engineer indicating that the surface has no cracks, gaps or other defects which would allow waste to migrate through to the underlying soil. If such a certification cannot be made, soil sampling and analysis must be conducted to establish clean closure.

3. Sweepings, washwaters and rinsates collected during closure of any tank system shall be managed as a hazardous waste. All wash water and rinsate generated during the closure of these units shall also be managed as a hazardous waste, unless the facility can document that it is not hazardous as defined in 35 IAC 721.103.
4. Subject to Condition III(H)(1) above, all samples shall be analyzed individually (i.e., no compositing). Sampling and analytical procedures shall be conducted in accordance with the latest edition of SW-846 and Attachment G to this Agency's closure plan instruction package. Sample size per interval shall be minimized to prevent dilution of any contamination. Apparent visually contaminated material within a sampling interval shall be included in the sample portion of the interval to be analyzed. To demonstrate a parameter is not present in a sample, analysis results must show a detection limit at least as low as the PQL for that parameter as identified in the latest edition of SW-846.
5. The Permittees shall provide post-closure care in accordance with 35 IAC Part 724 if all of the hazardous wastes or contaminated soils cannot be practicably removed or decontaminated in accordance with the closure requirements outlined in this permit and in the approved closure plan. If it is determined that the closure requirements cannot be met and post-closure care is required, the miscellaneous units shall be considered to be a landfill and the post-closure care plan in the approved application will be modified as required to provide adequate post-closure care for the affected units in accordance with 35 IAC, Subtitle G, Part 724, Subparts G and H.
6. Should post-closure care, as described in Condition III(H)(5) above, become necessary, the Permittees shall submit an application for modification to this permit, including an amended closure plan and post-closure care plan for the affected units within thirty (30) days following discovery that clean closure cannot be accomplished. If a determination is made not to pursue clean closure prior to the implementation of the closure plan for the miscellaneous units, the modification request shall be made no later than sixty (60) days after the determination is made.

7. Financial assurance for closure and post-closure of any tank system being closed as a landfill, when required in accordance with Conditions 5 and 6 above, shall be updated within thirty (30) days following modification of the permit under the provisions of Condition 6 above.
8. Within sixty (60) days after closure of any tank system is complete, the Permittee shall submit certification to the Agency that the unit has been closed in accordance with the approved closure plan.

The closure certification form in Attachment F to this permit or a certification with identical wording must be used. Signatures must meet the requirements of 35 Ill. Adm. Code Section 702.126. The independent engineer should be present all critical, major points (activities) during the closure. These might include soil sampling, soil removal, backfilling, final cover placement, etc. The frequency of inspections by the independent engineer must be sufficient to determinate the adequacy of each critical activity. Financial assurance must be maintained for each tank system identified in Condition III(B)(1) above. Documents regarding financial assurance for closure of this facility may be modified after the Agency approves the closure certification for any or all of the miscellaneous units. The Agency's review of closure certifications for partial or final closure will be reviewed in accordance with 35 IAC 724.243.

A Closure Documentation Report is to be submitted with the closure certification which includes the following items, if applicable:

- a. The volume of waste and waste residue remove, including wastes generated during decontamination procedures.
- b. A description of the method of waste handling and transport.
- c. Copies of the waste manifests.
- d. A description of the sampling and analytical methods used.
- e. A chronological summary of closure activities and the cost involved.
- f. Tests performed, methods and results.
- g. Color photographs of closure activities which document conditions before, during and after closure.
- h. A scale drawing of all excavated or decontaminated areas and sample locations.

9. To avoid creating another regulated storage unit during closure, obtain any necessary permits for waste disposal prior to initiating excavation activities. If it is necessary to store excavated hazardous waste on-site prior to off-site disposal, do so only in containers or tanks for less than ninety (90) days. Do not create regulated waste pile units by storing the excavated hazardous waste in piles. The ninety (90) day accumulation time exemption (35 IAC 722.134) only applies to containers and tanks.
10. Under the provisions of 29 CFR 1910 (51 FR 15,654, December 19, 1986), cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring, decontamination and training. General site workers engaged in activities that expose or potentially expose them to hazardous substances must receive a minimum of 40 hours of safety and health training off site plus a minimum of three days of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations.
11. If the Agency determines that implementation of this closure plan fails to satisfy the requirements of 35 IAC 724.211, the Agency reserves the right to amend the closure plan. Revisions of closure plans are subject to the appeal provisions of Section 40 the Illinois Environmental Protection Act.
12. Please be advised that the requirements of the Responsible Property Transfer Act (Public Act 85-1228) may apply to your facility due to the management of RCRA hazardous waste. In addition, please be advised that if you store or treat on-site generated hazardous waste in containers or tanks pursuant to 35 IAC 722.134, those units are subject to the closure requirements identified in 35 IAC 722.134(a)(1).

SECTION IV: CORRECTIVE ACTION

A. INTRODUCTION

In accordance with Section 3004 of RCRA and 35 IAC 724.201, the Permittees shall institute such corrective action as necessary to protect human health and the environment from all releases of hazardous wastes or hazardous constituents, listed in Appendix H of 35 IAC Part 721, from any of solid waste management unit (SWMU) at their facility in Lemont, Illinois. This shall be accomplished by:

1. Conducting a RCRA Facility Investigation (RFI) to determine whether releases of hazardous wastes and hazardous constituents have occurred from any solid waste management unit (SWMU) at its Lemont facility, and if so, the nature and extent of the release(s).
2. Based upon the results of the RFI, developing and implementing a Corrective Action Plan which describes the necessary corrective actions which will be taken. The required corrective actions shall be those actions necessary to protect human health and the environment from all releases of hazardous wastes or hazardous constituents, listed in Appendix H of 35 IAC Part 721, from any of the SWMUs determined to pose an environmental threat by the RFI required under the terms and conditions of this permit.

B. CONDUCTING THE RCRA FACILITY INVESTIGATION

The Permittees must conduct a RCRA Facility Investigation to determine the nature and extent of releases of hazardous wastes and hazardous constituents from certain SWMUs at the subject facility. This RFI shall be carried out in three phases. Each phase will provide for a more detailed evaluation of each Solid Waste Management Unit identified. The requirements for the RFI are provided in Attachment E to this permit.

1. Based upon the results of the RCRA Facility Assessment which was conducted by the Agency for this facility, the SWMUs identified in the table below must be evaluated in the RFI for potential releases to certain environmental media of concern also identified in the table. (Please note that this is not a complete listing of SWMUs at the subject facility.):

<u>Unit</u>	<u>Environmental Element of Concern</u>
Truck Transfer Area	Secondary Containment System Integrity
Outdoor Container Storage Area	Secondary Containment System Integrity

<u>Unit</u>	<u>Environmental Element of Concern</u>
Van Trailer Container Storage Area	Soil and Secondary Containment System Integrity
Old Aerosol Can Crushing Unit	Soil
Rolloff Box Storage Area	Secondary Containment System Integrity and Soil Sampling During Closure
Drum Crushing Unit	Secondary Containment Integrity and Soil Sampling During Closure
Underground Sanitary Waste Holding Tanks	Tank Integrity and SW846-8240 run-on Contents
Barge Cleaning Transfer Point	Soil
Drainage Ditch and Tiles Leading to Chicago	Soil Along Length of Ditch and Provisions For Lining of Ditch
2. The Permittees shall submit to the Illinois Environmental Protection Agency's Division of Land Pollution Control (Agency's DLPC) Permit Section, within 120 days after the effective date of this permit, a written RCRA Facility Investigation (RFI) Phase I Workplan. In general, the Phase I RFI Workplan must contain the following:	
a. General information regarding the Permittees facility in Lemont, Illinois.	
b. Information, as it is available, regarding each SWMU identified in Condition IV.B.1 above which (1) characterizes the unit, (2) describes its history of operations, and (3) documents the unit's integrity.	

- c. Proposed procedures, including field activities, to determine the absence or presence of releases of hazardous waste or hazardous constituents to the soil and/or air from each SWMU which is determined, based on the unit and waste characterization in III.B.2.b, to have a potential to have released hazardous waste or hazardous constituents to the environmental media.

More specific requirements regarding what must be contained in the Phase I Workplan are contained in Attachment D to this permit.

- 3. The Agency's DLPC will approve, approve with modifications, or disapprove the Phase I Workplan in writing and provide comments regarding the necessary corrections or modifications.
 - a. Within 60 days of receipt of such comments, the Permittees must modify the plan or submit a new plan for the Agency's DLPC approval.
 - b. Within 30 days of the Agency's DLPC approval of the RFI Phase I Workplan, the Permittee shall begin implementing the Workplan according to the terms and schedule in the Workplan.
 - c. Agency action on the Phase I Workplan will be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.
- 4. The Permittees must submit a report documenting the efforts carried out as set forth in the approved RFI Phase I Work Plan in accordance with the schedule established in the approved Workplan. This report must be organized so as to present a comprehensive and coherent description of the sources, nature and extent of soil contamination discovered at each SWMU during the Phase I RFI. The report must also discuss and evaluate the results of the Phase I RFI associated with each SWMU and include conclusions related to the need for additional investigation at each SWMU as part of a Phase II RFI. This report must be prepared in accordance with (1) the Data Management Plan which is to be a part of the RFI Phase I Workplan (see Item III.F of Attachment E to this permit) and (2) any modifications to the Workplan imposed by the Agency as part of its approval of the workplan.
 - a. Since the report must include conclusions related to the need for a Phase II investigation, it must contain proposed concentrations which will be used to make this determination. Justification for these proposed values must also be included in the report.

5. Following the submittal of the RFI Phase I report, the Agency's DLPC will review the submitted data and notify the Permittee in writing of the results of the review. This notification will discuss the status of each of the SWMUs evaluated as part of Phase I of the RFI.
 - a. If the Agency's DLPC determines, based upon the data provided within and obtained from the Phase I Workplan for each SWMU investigated, that (1) there is no potential for release from that SWMU to the environmental media of concern and (2) there has been no release of hazardous wastes or hazardous constituents to the environmental media of concern from that SWMU, then no further action will be required for that SWMU.
 - b. If the Agency's DLPC determines, based on the data from the Phase I RFI for each SWMU investigated, that (1) there has been a release to any environmental media of concern, (2) there currently is a release to any environmental media of concern, or (3) the data associated with a given SWMU is inconclusive, then the Permittee will be required to conduct additional investigation of the SWMU as part of Phase II and, if necessary, Phase III of the RFA.
 - c. The final letter sent to the facility conveying the results of the review will:
 1. Identify those SWMUs for which no further investigation is needed;
 2. Identify which SWMUs which must be further investigated to determine the rate and extent of migration of hazardous waste or hazardous constituents and the concentrations of the hazardous waste or hazardous constituents in the environmental media potentially impacted by the SWMU;
 3. Identify, for each SWMU requiring further investigation, the associated environmental media which must be further investigated;
 4. Indicate whether the facility must perform a Phase II and/or a Phase III RFI Investigation for those SWMUs requiring further investigation. Unless sufficient information is provided to the Agency as a result of additional investigation in the Phase II investigation, units which have the possibility of releasing hazardous waste or hazardous constituents to groundwater must be evaluated as part of Phase III of the RFA.

- d. Agency action on the final Phase I RFI report and proposed cleanup objectives will be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.
6. If the Permittees are notified in writing in accordance with Condition III.B.5.c that any SWMUs identified in Condition III.B.1 above must be included in Phase II of the RFI, then the Permittee must develop and submit a Phase II RFI Workplan. Phase II of the RFA shall focus on determining the rate and extent of migration of hazardous waste or hazardous constituents and the concentrations of the hazardous waste or hazardous constituents in the soil and/or air potentially impacted by the SWMU. Only the media potentially impacted by each SWMU as identified in the Agency notification set forth in Condition IV.B.5.c above must be investigated. Such a workplan must be submitted no more than 90 days after the facility is notified in writing in accordance with Condition III.B.5.c above. The requirements for a Phase II of the RFI are contained in Attachment D to the permit.
7. The Agency's DLPC will approve, modify and approve, or disapprove the Phase II workplan in writing and provide comments regarding the required corrections or modifications.
 - a. Within 60 days of the receipt of such comments, the Permittees must modify the plan or submit a new plan for the Agency's DLPC approval.
 - b. Within 30 days of the Agency's DLPC approval of the RFI Phase II Workplan, the Permittees shall begin implementing the plan according to the terms and schedule established in the Phase II Workplan.
 - c. Agency action on the Phase II workplan will be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.
8. The Permittees must submit a report documenting the efforts carried out in accordance with the approved RFI Phase II Workplan in accordance with the schedule established within the Phase II Workplan. This report must be prepared in a manner which is similar to that specified in Condition IV.B.4 above.
 - a. Should the Permittees wish to propose target soil cleanup objectives for corrective measures, such a proposal must be submitted to the Agency upon submittal of the RFI Phase II report. Such a request must consider distance from the subject SWMU(s) to potential

receptors, 35 IAC 620 groundwater quality standards, and it must provide an assessment of potential threats to human health and the environment in proposing soil, surface water or groundwater target cleanup objectives (i.e., the proposal should include a site and contaminant specific risk assessment which ensures that alternative target cleanup objectives will not allow the groundwater quality standards to be exceeded, or pose a threat to human health and the environment). The Agency will establish cleanup objectives for corrective measures if no objectives are proposed by the Permittee.

9. Following submittal of the RFI Phase II report, the Agency's DLPC will review the data obtained from the RFI Phase II investigation and notify the Permittees in writing of the results.
 - a. If the Agency determines that there is a potential that groundwater has been impacted by a release of hazardous wastes or hazardous constituents from any SWMU evaluated during the Phase II investigation, then the Permittees must conduct Phase III of the RFI for such SWMUs. The purpose of the Phase III investigation of the RFI will be to define the extent of releases, both on-site and off-site, to the groundwater from SWMUs for which the results of the Phase II investigation indicate a release to groundwater. The requirements associated with a Phase III Investigation are contained in Attachment D to this permit.
 - b. If the Agency's DLPC determines that a RFI Phase III investigation is not required, based on data obtained from the RFI Phase II investigation, the Agency reserves the right to require that corrective measures be conducted for the SWMU(s) of concern to address releases identified through the Phase I and Phase II investigations.
 - c. The Agency's response to the Phase II report will:
 - i. Identify those SWMUs and associated environmental media for which Phase III of the RFI must be conducted; and,
 - ii. Identify those SWMUs and associated environmental media for which corrective action is required, although no Phase III investigation is required.
 - d. Agency action on the final RFI Phase II report will be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.

10. Within 90 days of notification of the need for a Phase III investigation, the Permittees shall submit a plan for conducting Phase III of the RFI. The Agency's DLPC will approve, modify and approve, or disapprove and provide comments to the Permittee as to the corrections or modifications needed for the RFI Phase III Workplan.
 - a. Within 60 days of receipt of such comments, the Permittees must modify the plan or submit a new plan for the Agency's DLPC approval.
 - b. Within 30 days of the Agency's DLPC approval of the RFI Phase III Workplan, the Permittees shall begin implementing the plan according to the terms and schedule established within the Workplan.
 - c. Agency action on the Phase III workplan will be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.
11. Within 120 days of receipt of the Agency's response identified in Condition IV.B.9.c, the Permittees shall submit to the Agency's DLPC a Corrective Action Plan (CAP), in accordance with the requirements outlined in Condition IV.C. below for those SWMUs identified in the response as requiring corrective action that do not need to evaluate as part of the Phase III investigation.
12. The Permittees must submit a report documenting the efforts carried out in accordance with the approved RFA Phase III Workplan in accordance with the schedule set forth in that workplan. This report must be prepared in a manner which is similar to that specified in Condition IV.B.4 above.
13. Following submittal of the RFI Phase III report, the Agency's DLPC will review the data contained in the report and notify the Permittees in writing of the results.
 - a. If the Agency determines that there has been a release of hazardous waste or hazardous constituents from a SWMU to the groundwater, then the Permittee must perform corrective action, as necessary, to protect human health and the environment.
 - b. If the Agency determines that there (1) has not been a release of hazardous waste or hazardous constituents from a SWMU to the groundwater and (2) is no potential for releases of hazardous waste or hazardous constituents from a SWMU to the groundwater, then no corrective action will be required at that SWMU relating to groundwater.

- c. If the Agency determines (1) that there has not been a release of hazardous waste or hazardous constituents from a SWMU to the groundwater and (2) that there is a potential for future releases of hazardous waste or hazardous constituents from a SWMU to the groundwater, then the Agency may require a longer term groundwater monitoring program at any SWMU where substantial soil contamination exists (as determined by the Agency), or at any SWMU which would meet the definition of a land disposal unit.
 - d. The Agency's response to the Phase III report will:
 - i. Identify those SWMUs investigated as part of Phase III of the RFI from which there has been a release of hazardous waste or hazardous constituents to groundwater that requires corrective action;
 - ii. Identify those SWMUs investigated as part of Phase III of the RFI for which no corrective action is required for groundwater at this time;
 - iii. Identify those land-based SWMUs investigated as part of the Phase III RFI for which a longer term groundwater monitoring program must be established. "Land-based SWMUs" are SWMUs where waste, contaminated soil and/or contaminated groundwater are allowed to remain in-place.
 - e. Agency action on the Phase III Workplan will be subject to the appeal provisions of Sections 39(a) of the Illinois Environmental Protection Act.
14. If the Agency's notification identified in Condition IV.B.13.d above requires that corrective action be performed for releases of hazardous waste or hazardous constituents to the groundwater from certain SWMUs, then the Permittees must submit a Corrective Action Plan for this release from the SWMU(s) of concern which meets the requirements of Condition IV.C below for review and approval. This plan must be submitted within 120 days of the date that the notification identified in Condition IV.B.13.d is received by the Permittees.
15. If the Agency's notification identified in Condition IV.B.13.d above requires that a longer term groundwater monitoring program be established for certain SWMUs, then the Permittees must submit such a plan within 120 days after receiving this notification. This plan must be developed in accordance with the general procedures set forth in Section IV.D.4 of Attachment D. The Agency's DLPC will approve, modify and approve or disapprove and provide comments to the Permittee as to corrections or modifications needed for the program.

- a. Within sixty (60) days of receipt of such comments, the Permittees must modify the plan or submit a new plan for the Agency's approval.
- b. Within thirty (30) days of the approval of the plan, the Permittees shall begin implementing the plan in accordance with the terms and schedule established in the plan.
- c. Agency action on the groundwater monitoring plan will be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.

C. CORRECTIVE ACTION REQUIREMENTS

If, in accordance with Conditions IV.B.9 and/or IV.B.13, it is determined that corrective actions must be taken in response to releases from any SWMU, then the Permittees shall develop a Corrective Action Plan (CAP). This plan must be submitted within 120 days after receipt of the notification from the Agency that corrective actions are necessary to protect human health and the environment from observed releases from SWMUs at the facility. The purpose of the CAP is to develop and evaluate corrective action alternative(s) and evaluate corrective action measure(s) which will satisfy the target cleanup objectives specified by the Agency's DLPC. The proposed corrective actions must be sufficient to protect human health and the environment from the observed release.

The Agency DLPC will approve, modify and approve, or disapprove and provide comments to the Permittee as to the corrections or modifications needed for the CAP. Within 60 days of receipt of such comments, the Permittee must modify the CAP or submit a new CAP for the Agency's DLPC approval. The Agency's DLPC approval of one or more of the corrective measure(s) will consider, at a minimum, performance, reliability, implementability, safety, human health and the environmental impact of the measure(s). The formal approval and incorporation of the selected corrective measure(s) into the Part B permit will be via the Class 2 Permit Modification procedures identified in 35 IAC 703.282. The Permittee shall begin implementing the selected corrective measure(s) according to the terms and schedule identified in the modified permit.

D. FINANCIAL ASSURANCE FOR CORRECTIVE ACTION

1. The Permittees shall prepare a cost estimate for the completion of any corrective measure(s) required under this permit, in order to provide financial assurance for completion of corrective action, as

required under 35 IAC 724.201(b). Such a cost estimate will be based upon the cost of contamination investigations and assessments for the SWMU(s), and design, construction, operation, inspection, monitoring, and maintenance of the corrective measure(s) to meet the requirements of 35 IAC 724.201, Attachment D and this permit. This cost estimate must be submitted to the Agency's DLPC and revised according to the following schedule:

<u>Facility Submission</u>	<u>Due Date</u>
Initial Cost Estimate (with Workplan)	120 days after the RFI Phase I effective date of this permit
Revised Cost Estimate (with the initial submittal of each RFI Report)	Upon written Agency request

2. The Permittees shall demonstrate continuous compliance with 35 IAC 724.201 by providing documentation of financial assurance using a mechanism specified in 35 IAC 724.243, in at least the amount of the cost estimate required under Condition IV.D.1 the words "completion of corrective action" shall be substituted for "closure and/or post-closure", as appropriate in the financial instrument specified in 35 IAC 724.251. The documentation shall be submitted to the Agency's DLPC within 60 days after the submittal of the initial or revised cost estimates required under Condition IV.D.1. The Agency's DLPC may accept financial assurance for completion of corrective action in combination with another financial mechanism that acceptable under 35 IAC 724.246 at its discretion.

E. FUTURE RELEASES FROM SWMUs

Whenever the Permittees become aware that any SWMU, that was not found to be releasing hazardous waste or hazardous constituents during the RFI, or was not addressed under the corrective action requirements of this permit, may have started to release hazardous waste or hazardous constituents, the Permittees shall report this information to the Agency's DLPC in writing within thirty (30) days of discovery. Upon the Agency's written request, the Permittees shall determine the nature and extent of the contamination by following the procedures set forth in Conditions IV.B through IV.D, beginning on the date of notification, rather than on the effective date of the permit.

F. NOTIFICATION REQUIREMENTS FOR AN ASSESSMENT OF NEWLY- IDENTIFIED SOLID WASTE MANAGEMENT UNIT(S)

1. The Permittees shall notify the Agency's DLPC in writing of any newly-identified SWMU(s) discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means, no later than sixty (60) calendar days after discovery. The notification shall provide the following information, if available:
 - a. The location of the newly-identified SWMU in relation to other SWMUs on a scaled map or drawing;
 - b. The type and past and present function of the unit;
 - c. The general dimensions, capacities, and structural description of the unit (available drawings and specifications provided);
 - d. The period during which the unit was operated;
 - e. The specifics on all materials, including but not limited to, wastes and hazardous constituents, that have been or are being managed at the SWMU, to the extent available; and
 - f. The results of any relevant available sampling and analysis which may aid in determining whether releases of hazardous wastes or hazardous constituents have occurred or are occurring from the unit.
2. If the submitted information demonstrates a potential for a release of hazardous waste or hazardous waste constituents from the newly identified SWMU, the Agency's DLPC may request in writing, that the Permittee prepare a Solid Waste Management Unit (SWMU) Assessment Plan and a proposed schedule of implementation and completion of the Plan for any additional SWMU(s) discovered subsequent to the issuance of this Permit.
3. Within 120 calendar days after receipt of the Agency's DLPC request for a SWMU Assessment Plan, the Permittee shall prepare a SWMU Assessment Plan consistent with the requirements of IV.B through IV.D above. This SWMU Assessment plan must also propose investigations, including field investigations if necessary, to determine the release potential to specific environmental media for the newly-identified

SWMU.* The SWMU Assessment Plan must demonstrate that the sampling and analysis program, if applicable, is capable of yielding representative samples and must include parameters sufficient to identify migration of hazardous waste and hazardous constituents from the newly-discovered SWMU(s) to the environment.

4. After the Permittees submit the SWMU Assessment Plan, the Agency's DLPC shall either approve, approve with conditions or disapprove the Plan in writing. If the plan is approved, the Permittee shall begin to implement the Plan within forty-five (45) calendar days of receiving such written notification. If the Plan is disapproved, the Agency's DLPC shall notify the Permittee in writing of the Plan's deficiencies specify a due date for submittal of a revised plan.
5. The Permittees shall submit a report documenting the results of the approved SWMU Assessment Plan to the Agency's DLPC in accordance with the schedule in the approved SWMU Assessment Plan. The SWMU Assessment Report shall describe all results obtained from the implementation of the approved SWMU Assessment Plan.

G. COMPLETION OF CORRECTIVE ACTION

1. The Permittees shall complete those corrective actions contained in the Corrective Action Plan approved in accordance with Condition IV above. The Permittees may request the Agency's DLPC to consider corrective action complete at any point during compliance with this permit. The petition should include a demonstration of the following:
 - a. The Permittees shall demonstrate that there have been no releases of hazardous waste or hazardous constituents to any media from the SWMUs; or
 - b. The Permittees shall demonstrate that all releases of hazardous waste or hazardous constituents to all media targeted within the RFI for investigation have been remediated to the target cleanup objectives specified within the approved Corrective Measures Plan, and shall also describe how releases will be prevented in the future; or
 - c. Some combination of the above demonstrations.

Appropriate documentation and certification must accompany such a demonstration.

The Permittees shall be notified in writing if the Agency's DLPC approves the request that the corrective actions can be considered complete. The notification from the Agency's DLPC to the Permittee may include a release from the financial requirements of Condition F above.

2. A determination of no further action shall not preclude the Agency's DLPC from requiring continued or periodic inspections of the SWMU(s) or continued or periodic monitoring of the specified environmental media when site-specific circumstances indicate that releases of hazardous wastes including hazardous constituents are likely to occur, if necessary to protect human health and the environment. Any requirement for long-term groundwater monitoring may only be required at SWMU where substantial soil contamination exists (as determined by the Agency) or at any SWMU which would meet the definition of a land disposal unit.
3. A determination of no further action shall not preclude the Agency's DLPC from requiring further investigations, studies, or remediation at a later date, if new information or subsequent analysis indicates a release or likelihood of a release from a SWMU at the facility that is likely to pose a threat to human health of the environment. In such a case, the Agency's DLPC shall initiate a permit modification to rescind the determination no further action.

SECTION V: STANDARD CONDITIONS

GENERAL REQUIREMENTS

1. **EFFECT OF PERMIT.** The existence of a RCRA permit shall not constitute a defense to a violation of the Environmental Protection Act or Subtitle G, except for development, modification or operation without a permit. Issuance of this permit does not convey property rights or any exclusive privilege. Issuance of this permit does not authorize any injury to persons or property or invasion of other private rights, or infringement of state or local law or regulations. (35 IAC 702.181)
2. **PERMIT ACTIONS.** This permit may be modified, reissued or revoked for cause as specified in 35 IAC 703.270 through 703.273 and Section 702.186. The filing of a request by the Permittees for a permit modification or revocation, or a notification of planned changes or anticipated noncompliance on the part of the Permittees does not stay the applicability or enforceability of any permit condition. (35 IAC 702.146)
3. **SEVERABILITY.** The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby. (35 IAC 700.107)
4. **PERMIT CONDITION CONFLICT.** In case of conflict between a special permit condition and a standard condition, the special condition will prevail. (35 IAC 702.160)
5. **DUTY TO COMPLY.** The Permittees shall comply with all conditions of this permit except for the extent and for the duration such noncompliance is authorized by an emergency permit. Any permit noncompliance constitutes a violation of the Environmental Protection Act and is grounds for enforcement action; permit revocation or modification; or for denial of a permit renewal application. (35 IAC 702.141 and 703.242)
6. **DUTY TO REAPPLY.** If the Permittees wish to continue an activity allowed by this permit after the expiration date of this permit, the Permittees must apply for a new permit at least 180 days before this permit expires, unless permission for a later date has been granted by the Agency. (35 IAC 702.142 and 703.125)

7. PERMIT EXPIRATION. This permit and all conditions herein will remain in effect beyond the permit's expiration date if the Permittees have submitted a timely, complete application (see 35 IAC 703.181-703.209) and through no fault of the Permittees, the Agency has not issued a new permit as set forth in 35 IAC 702.125.
8. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE. It shall not be a defense for the Permittees in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (35 IAC 702.143)
9. DUTY TO MITIGATE. In the event of noncompliance with the permit, the permittee shall take all reasonable steps to minimize releases to the environment, and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment. (35 IAC 702.144)
10. PROPER OPERATION AND MAINTENANCE. The Permittees shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittees to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory, and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit. (35 IAC 702.145)
11. DUTY TO PROVIDE INFORMATION. The Permittees shall furnish to the Agency, within a reasonable time, any relevant information which the Agency may request to determine whether cause exists for modifying, revoking and reissuing or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Agency, upon request, copies of records required to be kept by this permit. (35 IAC 702.148)
12. INSPECTION AND ENTRY. The Permittees shall allow an authorized representative of the Agency, upon the presentation of credentials and other documents as may be required by law, to:
 - a. Enter at reasonable times upon the Permittees' premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

- c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
- d. Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the appropriate Act, any substances or parameters at any location. (35 IAC 702.149)

13. MONITORING AND RECORDS. (35 IAC 702.150)

- a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste must be the appropriate method from Appendix A of 35 IAC 721. Laboratory methods must be those specified in Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, latest versions; Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, latest versions; or an equivalent method as specified in the approved Waste Analysis Plan.
- b. The Permittees shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this permit, and records of all data used to complete the application for this permit for a period of at least 3 years from the date of the sample, measurement, report or application. These periods may be extended by request of the Agency at any time. The permittee shall maintain records from all groundwater monitoring wells and associated groundwater surface elevations, for the active life of the facility, and for disposal facilities for the post-closure care period as well.
- c. Records of monitoring information shall include:
 - i. The date(s), exact place, and time of sampling or measurements;
 - ii. The individual(s) who performed the sampling or measurements;
 - iii. The date(s) analyses were performed;
 - iv. The individual(s) who performed the analyses;
 - v. The analytical technique(s) or method(s) used; and
 - vi. The result(s) of such analyses. (35 IAC 702.150)

14. **REPORTING PLANNED CHANGES.** The Permittees shall give notice to the Agency as soon as possible of any planned physical alterations or additions to the permitted facility. For a new HWM facility, the permittee may not commence treatment, storage or disposal of hazardous waste; and for a facility being modified the permittee may not treat, store or dispose of hazardous waste in the modified portion of the facility, until:

a. The Permittees have submitted to the Agency by certified mail or hand delivery a letter signed by the permittee and a registered professional engineer stating that the facility has been constructed or modified in compliance with the permit; and

b.

1. The Agency has inspected the modified or newly constructed facility and finds it is in compliance with the condition of the permit; or

2. If, within 15 days of the date of submission of the letter in paragraph (a), the Permittees have not received notice from the Agency of its intent to inspect, prior inspection is waived and the Permittees may commence treatment, storage or disposal of hazardous waste. (35 IAC 703.244 and 702.152(a))

15. **ANTICIPATED NONCOMPLIANCE.** The Permittees shall give advance notice to the Agency of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. For a new facility, the Permittees shall not treat, store or dispose of hazardous waste; and for a facility being modified, the permittee shall not treat, store or dispose of hazardous waste in the modification portion of the facility, except as provided in Section 703.280, until:

i. The Permittees have submitted to the Agency by certified mail or hand delivery a letter signed by the Permittees and a registered professional engineer stating that the facility has been constructed or modified in compliance with the permit; and

ii. Either:

a. The Agency has inspected the modified or newly constructed facility and finds it is in compliance with the conditions of the permit; or

- b. Within 15 days after the date submission of the letter in section i above, the Permittees have not received notice from the Agency of its intent to inspect, the Permittees may commence treatment, storage or disposal of hazardous waste.

(35 IAC 702.152(b) and 703.247)

- 16. TRANSFER OF PERMITS. This permit is not transferable to any person except after notice to the Agency. The Agency may require modification of the permit to change the name of the Permittees and incorporate such other requirements as may be necessary under the appropriate Act. (See Sections 703.260 and 703.270, in some cases modification is mandatory.) (35 IAC 702.152(c))
- 17. MONITORING REPORTS. Monitoring results shall be reported at the intervals specified in the permit. (35 IAC 702.152(d))
- 18. COMPLIANCE SCHEDULES. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than specified in 35 IAC 702.162. (35 IAC 702.152(e))
- 19. TWENTY-FOUR HOUR REPORTING.
 - a. The Permittees shall report to the Agency any noncompliance with the permit which may endanger health or the environment. Any such information shall be reported orally within 24 hours from the time the Permittees become aware of the following circumstances. This report shall include the following:
 - i. Information concerning the release of any hazardous waste that may cause an endangerment to public drinking water supplies.
 - ii. Information concerning the release or discharge of any hazardous waste or of a fire or explosion at the HWM facility, which could threaten the environment or human health outside the facility.
 - b. The description of the occurrence and its cause shall include:
 - i. Name, address, and telephone number of the owner or operator;
 - ii. Name, address, and telephone number of the facility;
 - iii. Date, time, and type of incident;
 - iv. Name and quantity of material(s) involved;

- v. The extent of injuries, if any;
 - vi. An assessment of actual or potential hazards to the environment and human health outside the facility, where applicable; and
 - vii. Estimated quantity and disposition of recovered material that resulted from the incident.
- c. A written submission shall also be provided within 5 days of the time the Permittees become aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance including exact dates and times and if the noncompliance has not been corrected; the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Agency may waive the five day written notice requirement in favor of a written report within fifteen days. (35 IAC 702.152(f) and 703.245(b))
20. OTHER NONCOMPLIANCE. The Permittees shall report all instances of noncompliance not otherwise required to be reported under Standard Conditions 17, 18, and 19, at the time monitoring reports, as required by this permit, are submitted. The reports shall contain the information listed in Standard Condition 19. (35 IAC 702.152(g))
21. OTHER INFORMATION. Where the Permittees become aware that it failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Agency, the Permittee shall promptly submit such facts or information. (35 IAC 702.152(h))
22. REPORTING REQUIREMENTS. The following reports required by 35 Ill. Adm. Code 724 shall be submitted in addition to those required by 35 Ill. Adm. Code 702.152 (reporting requirements):
- a. Manifest discrepancy report: if a significant discrepancy in a manifest is discovered, the Permittees must attempt to reconcile the discrepancy with the waste generator or transporter. If the discrepancy is not resolved within 15 days after receiving the waste, the permittee must immediately submit to the Agency a letter describing the discrepancy and attempts to reconcile it and a copy of the manifest or shipping paper at issue. (35 IAC 724.172(b))
 - b. Unmanifested waste report: The Permittees must submit to the Agency within 15 days of receipt of unmanifested waste an unmanifested waste report on EPA form 8700-13B. (35 IAC 724.176)

- c. Annual report: an annual report must be submitted covering facility activities during the previous calendar year. (35 IAC 724.175)
23. SUBMITTAL OF REPORTS OR OTHER INFORMATION. All written reports or other written information required to be submitted by the terms of this permit shall be sent to:
- Illinois Environmental Protection Agency
Bureau of Land
Division of Land Pollution Control #24
Planning and Reporting Section
2200 Churchill Road
Post Office Box 19276
Springfield, Illinois 62794-9276
24. SIGNATORY REQUIREMENT. All permit applications, reports or information submitted to the Agency shall be signed and certified as required by 35 IAC 702.126. (35 IAC 702.151)
25. CONFIDENTIAL INFORMATION. Any claim of confidentiality must be asserted in accordance with 35 IAC 702.103 and 35 IAC 161.
26. DOCUMENTS TO BE MAINTAINED AT FACILITY SITE. The Permittees shall maintain at the facility, until closure is complete, the following documents and amendments, revisions and modifications to these documents:
- a. Waste analysis plan as required by 35 IAC 724.113(b) and this permit.
 - b. Personnel training documents and records as required by 35 IAC 724.116(d) and this permit.
 - c. Contingency plan as required by 35 IAC 724.153(a) and this permit.
 - d. Closure plan as required by 35 IAC 724.212(a) and this permit.
 - e. Cost estimate for facility closure as required by 35 IAC 724.242(d) and this permit.
 - f. Operating record as required by 35 IAC 724.173 and this permit.
 - g. Inspection schedules as required by 35 IAC 724.115(b) and this permit.
27. WASTE MINIMIZATION. The Permittees shall certify at least annually that the Permittees have a program in place to reduce the volume and toxicity of hazardous waste that he generates to the degree determined by the Permittees to be economically practicable, and the proposed method of

treatment, storage, or disposal is that practicable method currently available to the Permittee which minimizes the present and future threat to human health and the environment, in accordance with 35 IAC 724.173(b)(9).

GENERAL FACILITY STANDARDS

28. NOTICE OF WASTE FROM A FOREIGN SOURCE. The Permittee who has arranged to receive hazardous waste from a foreign source must notify the Agency in writing at least four weeks in advance of the date the waste is expected at the facility. (35 IAC 724.112(a))
29. NOTICE OF WASTE FROM OFF-SITE. The Permittee who receives hazardous waste from an off-site source (except where the Permittee is also the generator), must inform the generator in writing that the permittee has the appropriate permits for, and will accept, the waste the generator is shipping. The Permittee must keep a copy of this written notice as part of the facility operating record. (35 IAC 724.112(b))
30. GENERAL WASTE ANALYSIS. The Permittees shall comply with the procedures described in the approved waste analysis plan. (35 IAC 724.113)
31. SECURITY. The Permittees shall comply with the security provisions of 35 IAC 724.114(b) and (c).
32. GENERAL INSPECTION REQUIREMENTS. The Permittees shall follow the approved inspection schedule. The Permittee shall remedy any deterioration or malfunction discovered by an inspection as required by 35 IAC 724.115(c). Records of inspections shall be kept as required by 35 IAC 724.115(d).
33. PERSONNEL TRAINING. The Permittees shall conduct personnel training as required by 35 IAC 724.116 and shall maintain training documents and records as required by 35 IAC 724.116(d) and (e).
34. GENERAL REQUIREMENTS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE. The Permittees shall comply with the requirements of 35 IAC 724.117.

PREPAREDNESS AND PREVENTION

35. DESIGN AND OPERATION OF FACILITY. The Permittees shall maintain and operate the facility to minimize the possibility of fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment. (35 IAC 724.131)

CONTINGENCY PLAN

36. **REQUIRED EQUIPMENT.** The Permittees shall equip the facility with the equipment set forth in the approved contingency plan, as required by 35 IAC 724.132.
37. **TESTING AND MAINTENANCE OF EQUIPMENT.** The Permittees shall test and maintain the equipment specified in condition 36 as necessary to assure its proper operation in time of emergency. Such testing and maintenance activities are set forth in the approved inspection schedule. (35 IAC 724.133)
38. **ACCESS TO COMMUNICATIONS OR ALARM SYSTEM.** The Permittees shall maintain access to the communications or alarm system as required by 35 IAC 724.134.
39. **REQUIRED AISLE SPACE.** The Permittees shall maintain aisle space as required by 35 IAC 724.135 and National Fire Protection Association (NFPA) requirements.
40. **ARRANGEMENTS WITH STATE AND LOCAL AUTHORITIES AND EMERGENCY RESPONSE CONTRACTORS.** The Permittees shall attempt to make emergency response arrangements with State and local authorities and agreements with State emergency response teams and emergency response contractors and equipment suppliers as required by 35 IAC 724.137. If State or local officials refuse to enter in preparedness and prevention arrangements with the Permittees, the Permittees must document this refusal in the operating record.
41. **IMPLEMENTATION OF PLAN.** The provisions of the contingency plan must be carried out by the Permittees immediately whenever there is a fire, explosion or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment (35 IAC 724.151(b)).
42. **COPIES OF PLAN.** A copy of the contingency plan, including any revisions, must be maintained at the facility and submitted to all local police and fire departments, hospitals and state and local emergency response teams as required by 35 IAC 724.153.
43. **AMENDMENTS TO PLAN.** The Permittees shall review and immediately amend, if necessary, the contingency plan, as required by 35 IAC 724.154.
44. **EMERGENCY COORDINATOR.** A trained emergency coordinator shall be available at all times in case of an emergency as required by 35 IAC 724.155 and 724.156.

MANIFEST SYSTEM RECORD KEEPING AND REPORTING

45. **MANIFEST SYSTEM.** The Permittees shall comply with the manifest requirements of 35 IAC 724.171, 724.172 and 724.176.
46. **OPERATING RECORD.** The Permittees shall maintain a written operating record at the facility in accordance with 35 IAC 724.173.
47. **ANNUAL REPORT.** The Permittees shall prepare and submit an annual report to the Agency prior to March 1st of each year in accordance with the requirements of 35 IAC 724.175.

CLOSURE

48. **PERFORMANCE STANDARD.** The Permittees shall close the facility as required by 35 IAC 724.211 and in accordance with the approved closure plan.
49. **AMENDMENT TO CLOSURE PLAN.** The Permittees must amend the closure plan whenever there is a change in the expected year of closure or whenever a change in the facility operation plans or facility design affects the closure plan pursuant to 35 IAC 724.212(c).
50. **NOTIFICATION OF CLOSURE.** The Permittees shall notify the Agency at least 60 days prior to the date it expects to begin closure. (35 IAC 724.212(d))
51. **TIME ALLOWED FOR CLOSURE.** After receiving the final volume of hazardous waste, the Permittees shall treat or remove from the site all hazardous waste and complete closure activities in accordance with the schedule(s) specified in the closure plan. (35 IAC 724.213)
52. **DISPOSAL AND/OR DECONTAMINATION OF EQUIPMENT.** When closure is completed, the Permittees shall decontaminate and/or dispose of all facility equipment and structures as required by the approved closure (35 IAC 724.214) plan.
53. **CERTIFICATION OF CLOSURE.** When closure is completed, the Permittees shall submit certification to the Agency in accordance with 35 IAC 724.215 that the facility has been closed as specified by the approved closure plans.
54. **COST ESTIMATE FOR FACILITY CLOSURE.** The Permittees' original closure cost estimate, prepared in accordance with 35 IAC 724.242, must be:

- a. Adjusted for inflation either 60 days prior to each anniversary of the date on which the first closure cost estimate was prepared or if using the financial test or corporate guarantee, within 30 days after close of the firm's fiscal year.
 - b. Revised whenever there is a change in the facility's closure plan increasing the cost of closure.
 - c. Kept on record at the facility and updated. (35 IAC 724.242)
55. FINANCIAL ASSURANCE FOR FACILITY CLOSURE. The Permittee shall demonstrate compliance with 35 IAC 724.243 by providing documentation of financial assurance, as required by 35 IAC 724.251, in at least the amount of the cost estimates required by the previous Permit Condition. Changes in financial assurance mechanisms must be approved by the Agency pursuant to 35 IAC 724.243.
56. LIABILITY REQUIREMENTS. The Permittees shall demonstrate continuous compliance with the requirements of 35 IAC 724.247 and the documentation requirements of 35 IAC 724.251.
57. INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS. The Permittees shall comply with 35 IAC 724.248 whenever necessary.

LAND DISPOSAL RESTRICTIONS

58. DISPOSAL PROHIBITION. Any waste identified in 35 IAC Part 728, Subpart C, or any mixture of such a waste with nonrestricted wastes, is prohibited from land disposal unless it meets the standards of 35 IAC Part 728, Subpart D, or unless it meets the requirements for exemptions under Subpart C. "Land disposal" means placement in or on the land and includes, but is not limited to, placement in a landfill, surface impoundment, waste pile, injection well, land treatment facility, or vault intended for disposal.
59. DILUTION PROHIBITION. The Permittees shall not in any way dilute a restricted waste or residual from treatment of a restricted waste as a substitute for adequate treatment in order to achieve compliance with 35 IAC 728, Subpart D (35 IAC 728.103).
60. WASTE ANALYSIS.
1. The Permittees must test any waste or extract developed, using the test method identified in Appendix I of 40 CFR Part 268, or use knowledge of the waste, to determine if the waste is restricted from land disposal.

2. For any waste with treatment standards expressed as concentrations in the waste extract, the Permittee must test the treatment residues or an extract of such residues developed using the test method described in Appendix I of 40 CFR Part 268, to assure that the treatment residues or extract meet the applicable treatment standard.
3. If the treatment residues do not meet the treatment standards, or if the Permittees ship any restricted wastes to a different facility, the Permittees shall comply with the requirements applicable to generators in 35 IAC 728.107 and 728.150(a)(1).

61. STORAGE RESTRICTIONS

1. The Permittees shall not store hazardous wastes restricted from land disposal under 35 IAC Part 728, Subpart C unless such wastes are stored only in containers or tanks, and are stored solely for the purpose of the accumulation of such quantities as is necessary to facilitate proper recovery, treatment, or disposal, and: (1) each container is clearly marked to identify its contents and the date each period of accumulation begins; (2) each tank is clearly marked to identify its contents, the quantity of each hazardous waste received, and the date each period of accumulation begins, as required by 35 IAC 728.150.
2. The Permittees must comply with the operating record requirements of 35 IAC 724.173.

62. NEW DETERMINATIONS OF PROHIBITED WASTES

Wastes which are prohibited from land disposal under 35 IAC Part 728, Subpart C, or for which treatment standards have been established under 35 IAC 728, Subpart D, subsequent to the date of issuance of this permit, shall be subject to the conditions number 58 through 61 above.

SECTION VI: SPECIAL CONDITIONS

A. FACILITY OPERATION

1. This permit also allow for the temporary storage of wastes in containers resulting from emergency response spill cleanup for purposes of sampling, analysis and staging for off-site treatment, disposal, incineration or recovery.
2. Treatment, as permitted herein, is limited to:
 - a. Oil/hydrocarbon treatment system consisting of physical and chemical separation processes (clarification, coagulation, flocculation, flotation, decanting, sedimentation, filtration, chemical treatment, and heating) to remove and separate water and solids from the hydrocarbon phase of wastes, which shall also include the following pre-treatment processes:
 - i. Reactive waste neutralization for sulfide bearing (maximum allowable concentration of 1000 ppm) hydrocarbon mixtures using sodium hypochlorite as an oxidizing agent.
 - ii. Reduction of hexavalent chrome contaminated cooling oils (maximum allowable concentration of 1000 ppm) utilizing sodium hydrosulfite.
 - iii. Acid pre-treatment of oil and oil/water emulsions.
 - b. Acid/base neutralization.
 - c. Blending oils/hydrocarbon mixtures into supplementary fuels or for purposes of off-site incineration.
 - d. Solids conditioning with lime (of wastes generated from other on-site processes).
 - e. Solids dewatering (of waste generated from other on-site processes) using a plate and frame filter press.
3. Any wastes or materials with a vapor pressure greater than 1.5 psia or with a flash point less than 100°F shall be stored or treated in the vapor controlled storage/treatment system consisting of tanks labeled SF-1, SF-2, SF-3, SF-4, SF-5, SF-6, SF-7, HT-5, CB-2, CB-3 and CB-4.

4. Reactive sulfide neutralization and hexavalent chrome reduction shall be conducted only in the tank designated as VR-1.
5. The following conditions shall apply to waters containing polychlorinated biphenyls (PCBs) accepted at this facility for storage and treatment (fuel blending):
 - a. The facility shall not accept wastes containing polychlorinated biphenyls (PCBs) at a concentration greater than 5 ppm for treatment (fuel blending).
 - b. The facility shall not accept wastes containing polychlorinated biphenyls (PCBs) at a concentration greater than 45 ppm for storage.
6. This facility shall be operated in accordance with this Agency's Division of Air Pollution Control Permits.
7. All loading/unloading of wastes shall be accomplished over spill containment devices or secondary containment systems.
8. Drums of waste shall be stacked a maximum of two high with pallets or other dunnage between the floor and drums and between (top and bottom) each drum.
9. This permit is subject to review and modification by the Agency, as deemed necessary to fulfill the intent and purpose of the Environmental Protection Act, and all applicable environmental rules and regulations.
10. Drums received from off site for crushing which contained hazardous waste must be empty as defined in 35 IAC 721.107 when received.
11. Incompatible wastes in the storage bays shall not be located in the same or adjacent bays.
12. The storage of drums in the van trailers shall be in accordance with the following conditions:
 - a. The van trailers are container storage areas and aisle space requirements for inspections must be maintained at all times.
 - b. The lone exception to Condition VI(A)(12)(a) above would be in the instance that a law enforcement agency or other such entity would require sealed (limited or no access) storage of materials. During these times, the outside of the van trailers must be inspected weekly for signs of leakage.

13. The opening and consolidation of lab racks shall be conducted within the confines of an operating fume hood or functionary-equivalent vacuum device.
14. SCBA and ELSA apparatuses shall be kept in accordance with 29 CFR 1910.134.
15. Ventilation of lab pack area must be in accordance with 29 CFR 1910.1000.
16. Employees performing lab pack operations (opening, depacking, segregation and consolidation) shall wear in addition to level D protection as defined in the permit application, chemically resistant aprons or coats and gloves.
17. Fume hoods and/or functionary equivalent vacuum devices shall be constructed in accordance with the practices recommended by ACGIH Committee on Industrial Ventilation.
18. Crushed glass from the glass crushers shall be handled:
 - a. As a non-special waste if sent for reuse or recycling.
 - b. As a special waste if sent to a landfill for disposal.
19. Compressed gas cylinders shall not be incorporated with other lab pack materials and must be handled and transported in accordance with 49 CFR 173.301, 49 CFR 173.327, 49 CFR 173.336 and 49 CFR 173.337.
20. An air quality monitoring system capable of monitoring the lower explosive limit (LEL) of methane on a continuous basis must be installed as a part of the lab pack management program. This system shall have:
 - a. two (2) remote sensors in the compressed gas cylinder storage cage area.
 - b. four (4) remote sensors in the labpack depack and consolidation area.

The system shall be operated as to send a signal at 20% LEL and an alarm at 25% LEL. At the 25% LEL alarm, the contingency plan shall be implemented.

21. Only lab packs packaged in accordance with 49 CFR 173.12 may be received at this site for temporary storage, repackaging/consolidation of compatible materials for on-site treatment, or treatment/disposal off-site at permitted facilities.
22. Special wastes generated or stored at the site which must be disposed, incinerated or further treated off-site shall be transported to the receiving facility utilizing the Agency's supplemental permit system and manifest system.
23. In the Drum Storage and Processing Building, flammable USEPA listed or characteristically hazardous wastes shall only be stored in aisles 1, 2, 3 and 4 (28 - 55 gallon drum capacity each, 112 - 55 gallon drums total). No flammable USEPA listed or characteristically hazardous wastes shall be stored in aisles 5 through 11 (48 -- 55 gallon drum capacity each, 335 - 55 gallon drums total) until such time as provisions are made to provide 4 foot aisle spacing in compliance with Section 4-5.6.6 of NFPA 30, Flammable and Combustible Liquids Code. These provisions for 4 foot aisle spacings are a Class 2 modification.

B. WASTE ANALYSIS

1. Each waste stream received for storage or treatment shall be analyzed and processed in accordance with the procedures described in the application to assure that:
 - a. The waste stream is properly classified, and
 - b. None of the following wastes are received for treatment:
 - i. Reactive wastes (other than sulfide reactive hydrocarbon mixtures with a sulfide content of less than 1000 ppm).
 - ii. Poisonous wastes as defined by 49 CFR, Part 173, Subpart H, Section 173.326 and Section 173.343.
 - iii. Any waste containing material regulated by the Federal Insecticide, Fungicide and Rodenticide Act, as amended.
 - iv. Any waste containing material regulated by the Toxic Substances Control Act, as amended.

2. All wastes received for fuel blending into the used oil program shall be analyzed for total halogen using a USEPA approved test method. The Permittee shall use the following rebuttal method for determining halogenated solvents in wastes received for blending into fuel to be marketed as used oil:

Used oil or wastes containing more than 1,000 ppm of total halogens is presumed to be hazardous waste unless adequately rebutted by the generators. It is important to note that simply showing that the amount of chlorinated solvents in the oil is less than 1,000 ppm by GC/MS analysis (i.e., SW-846 method 8240) is not an adequate rebuttal to the presumption. For example, if the oil has a total halogen concentration of 3,000 ppm (by ASTM method 808), and the GC/MS analysis indicates 800 ppm of trichloroethylene, the presumption has not been adequately rebutted. The generator must still (1) identify the source(s) of all of the 3000 ppm chlorine and (2) provide that the 800 ppm of trichloroethylene is not the result of mixing the oil with a listed hazardous waste. At a minimum, the rebuttal shall include (1) the concentrations of halogenated solvents as determined by GC/MS Test Methods (i.e., SW-846 method 8240), or (2) if available, material safety data sheets for the waste. The MSDS' must include percent chlorine in each waste and the source (i.e., chlorinated paraffins) (3) process descriptions of the operations generating the waste. The description should identify the operations (including those which use solvents) raw materials, and products which may introduce chlorine into the process and (4) the generator certification form. A copy of the rebuttals shall be submitted with the renewal application for generic permits.

3. The Permittees shall conduct bench studies of the waste streams to determine compatibility if unable to verify or insure of the compatibility of the wastes through the literature search.
4. An analysis of each waste stream accepted from each generator shall be maintained on site as part of the facility's operating record. This information shall be made available to the Agency upon verbal or written request.
5. The specifications for each supplemental fuel blended on-site, including off-specification used oil fuels and hazardous waste fuels, shall be submitted to the Agency within thirty (30) days after the effective date of this permit. Should the type(s) of fuel blended on-site deviate from the initial submissions, the Permittees shall include the specifications for each supplemental fuel which is blended on-site in the operating record, prior to shipping the blended fuel off-site. This information shall be made available to the Agency upon written or verbal request.

6. No radioactive wastes may be accepted at this facility.
7. All waste received under this permit shall be reviewed for compatibility using the methods and procedures described in "A Method for Determining the Compatibility of Hazardous Waste" USEPA document EPA-600/2-80-076 dated April, 1980, in addition to the facility's approved waste analysis plan. The Permittees shall not store containers holding waste that is incompatible with any waste or other materials stored nearby unless it is separated from the other material and protected from them by means of a dike, berm or other secondary containment system.
8. No F020, F021, F022, F023, F026, F027 or F028 wastes may be accepted at this facility.
9. All hazardous wastes accepted at this site for blending into a hazardous waste fuel to be burned for energy recovery must have a minimum heat of combustion value of 5,000 Btu per pound. This requirement will be waived if the Permittees document in the facility operating record that the facility which receives the hazardous waste fuel has interim status or a Part B permit in accordance with 35 IAC Parts 725 or 724 respectively, or is in compliance with 35 IAC 726 Subpart H regarding boilers and industrial furnaces. Compliance with this requirement can be demonstrated through copies of relevant permit pages agency acknowledgement letters, or certifications.

C. REPORTING AND RECORDKEEPING

1. Special waste received at the site for storage and treatment/recovery shall be transported to the facility utilizing the Agency's supplemental waste stream permit or generic permit system and manifest system.
2. Special wastes generated at the site for disposal, storage, incineration or further treatment elsewhere shall be transported to the receiving facility utilizing the Agency's supplemental waste stream permit system and manifest system.
3. This permit is issued with the expressed understanding that no process discharge to waters of the State or to a sanitary sewer will occur from these facilities. If such discharge occurs, additional or alternate facilities shall be provided. The construction of such additional or alternate facilities may not be started until a permit for their construction has been issued by the Agency.

4. Permittees shall notify the Agency of any changes from the information submitted to the Agency in its application for a development and operating permit for this site. The Permittees shall notify the Agency of any changes in the names or addresses of both beneficial and legal changes in the names or addresses of both beneficial and legal titleholders to the herein-permitted site. Such notification shall be made in writing within fifteen (15) days of such change and shall include the name or names of any parties in interest and the address of their place or abode; or, if a corporation, the name and address of its registered agent.
5. The Permittees shall include a scale drawing showing the location of the waste transfer equipment and apparatus (i.e., grinders, dispensers, upender, fume hoods, glass crushers, etc.) in the operating permit application.
6. The following information shall be documented in the operating record of this facility regarding each load of waste received under this permit:
 - A. Date that the load is received;
 - B. Manifest number associated with the load of waste;
 - C. Waste name;
 - D. Generator name, location and IEPA identification numbers;
 - E. Volume of waste received;
 - F. A description of how the waste was managed at the Heritage facility (e.g., stored in the original container, bulked in a transport tanker or container, etc.):
 - G. An identification of the location of the waste within the facility.
7. The following information shall be documented in the operating record of this facility regarding each load of waste shipped off-site for disposal, treatment or reclamation:
 - A. Date that each load is sent off-site;
 - B. Waste name;
 - C. Name, location and IEPA identification number of the facility which will receive the waste;

- D. Waste stream permit number (Authorization number) number which the wastes is to be received at the off-site facility (if the waste is being sent to a facility in Illinois);
 - E. Number of the manifest under which the waste is to be shipped;
 - F. Volume of waste to be shipped;
 - G. Disposition of the waste (disposal, treatment, reclamation).
- 8. The information required to be placed in the operating record by Conditions VI(C)(6) and VI(C)(7) above shall be made available to the Agency upon verbal or written request.
 - 9. The name and address of any new marketer and/or burner of fuels blended at this facility (including specification oils, off-specification oils and hazardous waste fuels) shall be submitted to the Agency prior to shipping the fuel off-site to the new marketer/burner, along with documentation that each marketer and/or burner of hazardous waste fuels or off-specification used oil fuels has so notified USEPA and has received a USEPA Identification Number.
 - 10. This facility shall record the total quantity of waste received from each generator for each of the generic waste streams identified in the operating record. Heritage Environmental Services shall submit the records of all materials and waste shipped off-site to the Agency upon written or verbal request.
 - 11. A packing list identifying all hazardous waste classes inside of a lab pack must be attached to its outside container prior to it being placed into storage.
 - 12. All treated wastes shall be managed in accordance with supplemental waste stream permits and/or waste stream disposal authorizations issued by this Agency.

D. INSPECTIONS

- 1. The three carbon absorber control devices on SF-1, SF-2, SF-3, SF4, SF5, SF-6, SF-7, CB-2, CB-3, CB-4 and HT-5 shall be inspected weekly for deterioration and/or leakage.
- 2. All equipment associated with the waste stabilization unit shall be inspected on a daily basis to ensure it is in good working order. Appropriate action shall be taken to correct any problems encountered.

E. CONTINGENCY PLAN

1. The permittees shall implement the approved contingency plan any time there is a (1) fire or explosion which involves hazardous waste or which occurs in areas which hazardous waste is treated or stored or, (2) release of hazardous waste or hazardous waste constituents to the environment.
 - a. The permittees shall report the implementation of the contingency plan due to a fire or explosion which involves hazardous waste or which occurs in areas in which hazardous waste is treated or stored to the emergency response entities identified in Condition VI(E)(2)(a) below in all instances.
 - b. The permittees shall report the implementation of the contingency plan due to a release to the emergency response entities as identified in Condition VI(E)(2)(a) below unless the spill is less than one pound in quantity and immediately cleaned up or the permittees have modified the permit in accordance with the provisions of Condition VI(E)(1)(C) below.
 - c. The reporting requirements identified in Condition VI(E)(1)(b) above shall remain in effect until such time as the permittees have provided documentation of release volumes based on an air modeling program. The program must demonstrate that the quantity of hazardous waste or hazardous waste constituents released is below the threshold release quantity of hazardous waste or hazardous waste constituents which have an impact off-site. This air modeling must be performed for each hazardous waste identified in 35 IAC 721 Subpart C or hazardous waste or hazardous waste constituent in a pure state identified in 35 IAC 721 Appendix G and/or Appendix H for each RCRA Hazardous Waste Code that the facility is permitted to accept. The results of this modeling shall be made the subject of a Class 1* modification to this permit.
 - d. The permittees shall document each implementation of the contingency plan in the facility's operating record. This information shall be made available to the Agency upon written or verbal request. In the event of an emergency, the permittees shall follow the emergency procedures identified at 35 IAC 724.156, including follow-up reports to the Agency, at all times.
2. The Permittees shall contact the following local emergency response entities as soon as possible after the implementation of the contingency plan except as described in Condition IV. E. 1 above:

- a. The entities which must be notified include:
 - i. Lemont Fire Department
 - ii. Lemont Police Department
 - iii. Local ESDA coordinator
 - b. The information which must be initially relayed to each entity includes:
 - i. The type of emergency (release, fire or explosion);
 - ii. The wastes involved in the emergency and the approximate quantity involved;
 - iii. An initial assessment of the conditions at the site;
 - c. If the Permittees are able to properly respond to the emergency without any aid from the entities identified in Condition VI(E)(2)(a) above, the Permittees shall notify each of these entities that the emergency situation no longer exists once all required emergency response and cleanup activities have been completed.
3. Within sixty (60) days of the effective date of this permit, the Permittees shall demonstrate to the Agency that the following information has been provided to the local fire department, the local police department and all other agencies identified in 35 IAC 724.153(b) (Note that this information must be provided to these entities to ensure the requirements of 35 IAC 724.137 are met):
- a. A list of all hazardous wastes to be managed at the facility (generic name) including the USEPA hazardous waste number;
 - b. A scaled drawing showing the location of all hazardous waste management units at the facility and all other areas where waste is managed at the facility (such as loading/unloading areas, etc.). This scaled drawing must also identify the entrances to the facility, roads within the facility and possible evacuation routes;
 - c. A description of the types of waste managed at each hazardous waste management unit at the facility;
 - d. A description of the procedures used to handle waste at the facility;

- e. An estimate of the quantity of the various types of waste which may be present at the facility. An estimate of the typical inventory of wastes at the facility must also be included;
- f. The following information regarding the properties of each waste managed at the facility:

Compound Name
USEPA Hazardous Waste Number
CAS Number
IDLH
TLVs (TLV-TWA, TLV-STEL, TLV-C)
Boiling Point (if applicable)
Vapor pressure at 68° F (20 C)
Lower explosion limit (if applicable)
Upper explosion limit (if applicable)
NFPA Designation (flammable or combustible)
Material Safety Data Sheets
Other appropriate characteristics (such as reactive class, etc.)
USDOT classification

- g. A ranking of the compounds identified in Condition VI(E)(3)(f) above by IDLH (in order of ascending IDLH).
- h. A ranking of the compounds identified in Condition VI(E)(3)(f) above by vapor pressure at 68° F (in order of descending vapor pressure);
- i. An identification of the compounds listed in Condition VI(E)(3)(f) which are of most threat to human health and the environment. In compiling this list, it must be noted that both the IDLH and the vapor pressure at 68° F must be evaluated in identifying these compounds.
- j. An identification of the products of incomplete combustion which would be generated if any of the wastes managed at the facility were to be engulfed in a fire. This information must be compiled for each waste to be managed at the facility. Examples of incomplete products of combustion which would be of concern are shown in the following table:

<u>Waste-Type Involved in Fire</u>	<u>Product of Incomplete Combustion</u>
Aliphatic chlorinated hydrocarbons	Phosgene, Hydrogen Chloride Gas

Non-substituted aromatics	CO, CO2, Alcohols
Nitrated compounds	NO, NO2, N2O, (NO _x)
Sulfur bearing wastes	SO2, SO3, (SO _x)
Cyanide bearing wastes	Hydrogen Cyanide gas
Fluorine bearing wastes	Hydrogen Fluoride gas
Bromine bearing wastes	Hydrogen Bromide gas

The information identified in Condition VI(E)(3)(f) above must be provided for each of the identified products of incomplete combustion. In addition, a ranking of the wastes managed at the facility in relation to the potential products of incomplete combustion must be provided (based upon the IDLH of the potential products of incomplete combustion).

4. Within sixty (60) days of the effective date of this permit, the Permittees shall provide documentation to the Agency that the agreements and arrangements identified below have been made. Where necessary, documentation must be provided that any agency identified in 35 IAC 724.153(b) declined to enter an agreement or arrangement. The specific arrangements and agreements which must be made include:
 - a. Arrangements to familiarize the local police department, local fire departments and other local emergency response teams with the layout of the facility, properties of hazardous wastes handled at the facility and associated hazards, places where facility personnel would normally be working, entrances to and roads inside the facility and possible evacuation routes.
 - b. Agreements designating primary emergency authority to a specific police department and a specific fire department, where more than one police department and fire department might respond to an emergency. Agreements should also be made with the other surrounding police and fire departments to provide support to the primary emergency authorities;
 - c. Agreements with state emergency response teams, emergency response contractors and equipment suppliers;
 - d. Agreements to familiarize local hospitals with the properties of the hazardous wastes handled at the facility and the types of injuries or illnesses which could result from fires, explosions or releases at the facility.

- e. Arrangements to identify a single local emergency response agency as the primary agency which will coordinate activities required by these agencies during an emergency at the facility.

The facility should also attempt to develop emergency plans and coordination agreements with the state and local emergency entities identified above. The detail of the arrangements made with the local and state emergency entities will be dependent upon the types of wastes handled at the facility and the potential need for the services of the various entities.

- 5. The Permittees shall review all components of the contingency plan with the local emergency response entities during the month of October each year. Copies of the meeting notes and list of attendees shall be placed in the facility's operating record and be available to the Agency for review upon verbal or written request.
- 6. The Permittee shall modify the contingency plan to describe in detail the possible hazards to human health or the environment results from any emergency (release, fire, explosion). This information is necessary to the emergency coordinator to make a proper assessment of the emergency as required by 35 IAC 724.156(c) and (d). Specifically, the contingency plan must contain guidance as to the hazards associated with release and fires of the various hazardous wastes managed at the facility and the aerial impacts of such emergencies. Information which must be incorporated into the contingency plan includes:
 - a. The information identified in Conditions VI(E)(3)(f) and VI(E)(3)(j) above;
 - b. An evaluation of the hazards associated with a release or fire involving the various hazardous wastes which may be managed at the facility;
 - c. An evaluation of the area which may potentially be impacted during a release or fire involving the various hazardous wastes managed at the facility.

The information to be incorporated into the contingency plan, as required by this condition, must first be approved in writing by the Agency. A revised contingency plan which incorporates the required information must be submitted to the Agency within sixty (60) days of the effective date of this permit.

- 7. If it is determined from this evaluation that adverse off-site impacts are possible as a result of a release, fire or explosion involving hazardous wastes at the facility, the Emergency Coordinator

shall assess the "hazard potential" associated with the existing conditions of the facility at the beginning of each operating shift. The items which must be considered in this assessment include (1) the weather conditions (wind speed, wind direction, atmospheric stability, etc.) and associated dispersion characteristics of the atmospheric conditions, (2) the volume of the various types of wastes present at the facility, (3) the hazardous characteristics of the wastes on-site, including the products of combustion which may be produced in the event of a fire, (4) the emergency situations which may occur that day and (5) the waste management activities expected to be carried out day. An evaluation of the potential off-site impacts be through the use of commercially available models should also be completed as part of the assessment. The IEPA is currently using the computer based model titled "ARCHIE" which is available from the Federal Emergency Management Agency (202/643-3484). These evaluations shall be documented in the operating record and be readily available for review by the Emergency Coordinator and the emergency response agencies in the event of an emergency.

8. Pursuant to 35 IAC 724.132, the facility shall provide on-site all additional emergency equipment deemed necessary by the primary emergency response agencies for the implementation and execution of the facility's contingency plan.
9. An independent fire control professional in conjunction with the local fire department shall evaluate the adequacy of the facility's fire prevention equipment and procedures. The Permittees shall make any and all changes to the fire control equipment and procedures recommended as part of the independent evaluation, subject to Agency approval.

SECTION VII: REPORTING AND NOTIFICATION REQUIREMENTS

The reporting and notification requirements of each section of the RCRA permit are summarized below. This summary is provided to highlight the various reporting and notification requirements of this permit.

<u>Condition</u>	<u>Submittal</u>	<u>Due Date</u>
SECTION I: CONTAINER		
K(1)	Notify Agency of intent to close container storage area	180 days prior to commencement of closure.
K(1)	Submit soil sampling and analysis plan for review.	180 days prior to commencement of closure
K(4)	Submit application for modification of permit and post-closure care plan	No later than 30 days after determination that the container storage area cannot be clean closed
K(6)	Update financial assurance to include modification in Conditions I(K)(4) or I(K)(5)	30 days after permit is modified.
K(7)	Submit certification for closure of container storage area	No later than 60 days after closure of container storage area is complete.
SECTION II: TANK SYSTEMS		
C(3)	Submit leak test tanks and ancillary equipment	By February 15 of each year
D(1)(a)	Submit results from new tank certification and assessment as required by 35 IAC 724.292 and 724.293	No later than 30 days after construction but prior to placing any waste into system

SECTION II: TANK SYSTEMS (Continued)

D(1)(b)	Submit certification for new secondary containment systems	No later than 30 days after construction but prior to placing any waste into system
I(7)(f)	Results of tank integrity assessment.	60 days after inspection
J(1)	Notify Agency of a leak or spill.	24 hours after leak or spill occurs.
H(2)J(2)	Report to Agency on release and Permittee's response.	30 days after leak or spill occurs.
M(1)	Notify Agency of intent to close tank system(s).	180 days prior to commencement of closure
M(1)	Submit sampling and analysis plan	180 days prior to commencement of closure
M(6)	Submit application for permit modification and post-closure care plan.	60 days after determination that a tank system must be closed as a landfill
M(7)	Financial Assurance for closure or post-closure.	30 days after effective date of permit or modification of permit
E(2)(c)	Submit certification that level controllers and overfill protection as required by 35 IAC 724.294 have been installed and are operating properly.	By December 31, 1992
C(4)	As-Built plans of modifications to the storage tanks.	30 days after modifications are completed

SECTION II: TANK SYSTEMS (Continued)

I(7)(f)	Results of annual tank integrity assessment.	60 days after inspection
M(8)	Submit certification of closure of tank system(s)	60 days after closure of tank system(s) is complete

SECTION III: STABILIZATION UNIT

C(2)(f), C(3)(f)	Submit sample results from treatment demonstration	Within 30 days after sampling is complete
E(1)	Submit certification of major repair completion	Within 7 days of Returning tank to service
H(1)	Notify Agency of intent to close tank systems	180 days prior to commencement of closure
H(1)	Submit sampling and analysis plan	180 days prior to commencement of closure
H(6)	Submit application for permit modification and post-closure care plan	60 days after determination that tank system must be closed as a landfill
H(7)	Financial assurance for closure or post-closure care	30 days after effective date of permit or modification of permit

SECTION V: STANDARD CONDITIONS

6	Complete application for new permit.	180 days prior to permit expiration.
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SECTION V: STANDARD CONDITIONS (Continued)

11	Information requested by Agency and copies of records required to be kept by this permit.	Submittal date to be determined by Agency.
14	Notify Agency of planned physical alterations or additions.	15 days prior to planned change.
15	Notify Agency of changes which may result in permit noncompliance.	Within 15 days of change.
16	Application for permit modification indicating permit is to be transferred.	At least 90 days prior to transfer date.
18	Submission of any information required in a compliance schedule.	14 days after each schedule date.
19	Report to Agency any non-compliance which may endanger health or environment.	
	by telephone	24 hours after discovery.
	in writing	5 days after discovery.
20	Report all other instances of noncompliance.	March 1 of each year along with Annual Report.
27	Notify Agency in writing of expected receipt of hazardous waste from foreign source.	4 weeks prior to receipt of waste.
39	Update arrangements with local authorities	At least annually
40	Implementation of Contingency Plan.	
	Notify appropriate state and local agencies with designated response roles.	As needed.

SECTION V: STANDARD CONDITIONS (Continued)

	Notify appropriate local officials.	Immediately, if emergency coordinator's assessment indicates evacuation of local area is advisable.
	Notify the Agency (217/782-3637) or Illinois ESDA (217/782-7860) if emergency coordinator determines there has been a release, fire or explosion which could threaten human health or the environment, outside the facility.	Immediately after determination made.
	Notify Agency and appropriate state and local authorities, in writing that facility is in compliance with 35 IAC 724.156(h).	Prior to resuming operation in affected areas.
	Report to Agency details regarding incident which required implementation of contingency plan.	15 days after
46	Submit annual report required by 35 IAC 724.175.	March 1 of each year.
48	Application for permit modification amending closure plan.	Within 90 days of discovery of need for modification
49	Notify Agency that expecting to close.	180 days prior to beginning closure.
53(a)	Adjust closure cost estimate for inflation.	30 days after anniversary date
53(b)	Revision of closure cost estimate.	As needed, within 90 days of discovery of revision
54	Change in financial assurance mechanism for closure.	As needed

SECTION V: STANDARD CONDITIONS (Continued)

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|----|---|--|
| 55 | Change in coverage for sudden and non-sudden accidental occurrences. | As needed |
| 56 | Notify Agency of commencement of voluntary or involuntary bankruptcy proceedings. | Within 10 days after commencement of proceeding. |

ATTACHMENT D SPECIAL CONDITIONS

- | | | |
|------|--|--|
| E(4) | Submit documentation of arrangements and agreements with local response agencies | 90 days after effective date of permit |
| E(5) | Conduct meeting with local emergency response teams to review the contingency plan | Annually |
| E(9) | Submit results of independent fire control professional facility evaluation | 60 days after effective date of permit |

Attachment A
Waste Codes and Descriptions of Wastes
That Can Be Accepted
At
Heritage Environmental Services
Lemont, Illinois
ILD085349264
DLPC 0311620007

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USEPA Hazardous
Waste Number

D001, Characteristic of Ignitability

- a) A solid waste exhibits the characteristic of ignitability if a representative sample of the waste has any of the following properties:
- 1) It is a liquid, other than an aqueous solution containing less than 24 percent alcohol by volume, and has a flash point less than 60°C (140°F), as determined by Pensky-Martens Closed Cup Tester, using the test method specified in the American Society of Testing Materials (ASTM) Standard D-93-79 or D-93-80, or a Setaflash Closed Cup Tester, using the test method specified in ASTM Standard D-3278-78 or as determined by an equivalent test method approved by the Board.
 - 2) It is not a liquid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard.
 - 3) It is an ignitable compressed gas as defined in 49 CFR 173.300 and as determined by the test methods described in that regulation or equivalent test methods approved by the Board.
 - 4) It is an oxidizer as defined in 49 CFR 173.151.

D002, Characteristic of Corrosivity

- a) A solid waste exhibits the characteristic of corrosivity if a representative sample of the waste has either of the following properties:
- 1) It is aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5, as determined by a pH meter using either an EPA test method or an equivalent test method (Section 720.121). The EPA test method for pH is specified as Method 5.2 in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods".
 - 2) It is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 mm (0.250 inch) per year at a test temperature of 55°C (130°F) as determined by the test method specified in NACE (National Association of Corrosion Engineers) Standard TM-01-69 as standardized in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" or an equivalent test method (Section 720.121).

D003, Characteristic of Reactivity

A solid waste exhibits the characteristic of reactivity if a representative sample of the waste has any of the following properties:

- 1) It is a cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5 can generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment.

EPA Hazardous Waste Number	Compound	CAS Number	Regulatory Level mg/l
D004	Arsenic	7440-38-2	5.0
D005	Barium	7440-39-3	100.0
D006	Cadmium	7440-43-9	1.0
D007	Chromium	7440-47-3	5.0
D008	Lead	7439-92-1	5.0
D009	Mercury	7439-97-6	0.2
D010	Selenium	7782-49-2	1.0
D011	Silver	7440-22-4	5.0
D012	Endrin	72-20-8	0.02
D013	Lindane	58-89-9	0.4
D014	Methoxychlor	72-43-5	10.0
D015	Toxaphene	8001-35-2	0.5
D016	2,4,-D	94-75-7	10.0
D017	2,4,5-TP (Silvex)	93-72-1	1.0
D018	Benzene	71-43-2	0.5
D019	Carbon tetrachloride	56-23-5	0.5
D020	Chlordane	57-74-9	0.03
D021	Chlorobenzene	108-90-7	100.0
D022	Chloroform	67-66-3	6.0
D023	o-Cresol	95-48-7	200.0
D024	m-Cresol	108-39-4	200.0
D025	p-Cresol	106-44-5	200.0
D026	Cresol		200.0
D027	1,4-Dichlorobenzene	106-46-7	7.5
D028	1,2-Dichloroethane	107-06-2	0.5
D029	1,1-Dichloroethylene	75-35-4	0.7
D030	2,4-Dinitrotoluene	121-14-2	0.13
D031	Heptachlor (and its Epoxide)	76-44-8	0.008
D032	Hexachlorobenzene	118-74-1	0.13
D033	Hexachloro-1,3-butadiene	87-68-3	0.5
D034	Hexachloroethane	67-72-1	3.0
D035	Methyl ethyl ketone	78-93-3	200.0

EPA Hazardous Waste Number	Compound	CAS Number	Regulatory Level mg/l
D036	Nitrobenzene	98-95-3	2.0
D037	Pentachlorophenol	87-86-5	100.0
D038	Pyridine	110-86-1	5.0
D039	Tetrachloroethylene	127-18-4	0.7
D040	Trichloroethylene	79-01-6	0.5
D041	2,4,5-Trichlorophenol	95-95-4	400.0
D042	2,4,6-Trichlorophenol	88-06-2	2.0
D043	Vinyl chloride	75-01-4	0.2

USEPA Hazardous
Waste Number

Hazardous Waste

- F001 The following spent halogenated solvents used in degreasing tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures and blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004 or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
- F002 The following spent halogenated solvents: tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, orthodichlorobenzene, trichlorofluoromethane; and 1,1,2-trichloroethane; all spent solvent mixtures and blends containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
- F003 The following spent non-halogenated solvents: xylene, acetone, ethylacetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures and blends containing, before use, only the above spent non-halogenated solvents;

USEPA Hazardous
Waste Number

Hazardous Waste

and all spent solvent mixtures and blends containing, before use, one or more of the above non-halogenated solvents and a total of ten percent or more (by volume) of one or more of those solvents listed in F001, F002, F004 or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

- F004 The following spent non-halogenated solvents: cresols and cresylic acid, and nitrobenzene; all spent solvent mixtures and blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002 or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
- F005 The following spent non-halogenated solvents: toluene, methyl ethylketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol and 2-nitropropane; all spent solvent mixtures and blends, containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002 or F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
- F006 Wastewater treatment sludges from electroplating operations except from the following processes: (1) sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc plating (segregated basis) on carbon steel; (4) aluminum or zinc-aluminum plating on carbon steel; (5) cleaning/stripping associated with tin, zinc and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum.
- F007 Spent cyanide plating bath solutions from electroplating operations.
- F008 Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process.
- F009 Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.

<u>USEPA Hazardous Waste Number</u>	<u>Hazardous Waste</u>
F010	Quenching bath residues from oil baths from metal heat treating operations where cyanides are used in the process.
F011	Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations.
F012	Quenching wastewater treatment sludges from metal heat treating operations where cyanides are used in the process.
F019	Wastewater treatment sludges from the chemical conversion coating of aluminum.
F039	Leachate resulting from the treatment, storage or disposal of wastes classified by more than one waste code under Subpart D, or from a mixture of wastes classified under Subparts C and D. (Leachate resulting from the management of one or more of the following USEPA hazardous wastes and no other hazardous wastes retains its hazardous waste code(s): F020, F021, F022, F023, F026, F027 or F028.)
K002	Wastewater treatment sludge from the production of chrome yellow and orange pigments.
K003	Wastewater treatment sludge from the production of molybdate orange pigments.
K004	Wastewater treatment sludge from the production of zinc yellow pigments.
K005	Wastewater treatment sludge from the production of chrome green pigments.
K006	Wastewater treatment sludge from the production of chrome oxide green pigments (anhydrous and hydrated).
K007	Wastewater treatment sludge from the production of iron blue pigments.
K008	Oven residue from the production of chrome oxide green pigments.
K022	Distillation bottom tars from the production of phenol/acetone from Cumene.

<u>USEPA Hazardous Waste Number</u>	<u>Hazardous Waste</u>
K023	Distillation light ends from the production of phthalic anhydride from naphthalene.
K024	Distillation bottoms from the production of phthalic anhydride from naphthalene.
K025	Distillation bottoms from the production of nitrobenzene by the nitration of benzene.
K029	Waste from the product stream stripper in the production of 1,1,1- trichloroethane.
K032	Wastewater treatment sludge from the production of chlordane.
K035	Wastewater treatment sludges generated in the production of creosote.
K041	Wastewater treatment sludge from the production of toxaphene.
K046	Wastewater treatment sludges from the manufacturing, formulation and loading of lead based initiating compounds.
K048	Dissolved air flotation (DAF) float from the petroleum refining industry.
K049	Slop oil emulsion solids from the petroleum refining industry.
K050	Heat exchanger bundle cleaning sludge from the petroleum refining industry.
K051	API separator sludge from the petroleum refining industry.
K052	Tank bottoms (leaded) from the petroleum refining industry.
K060	Ammonia still lime sludge from coking operations.
K061	Emission control dust/sludge from the primary production of steel in electric furnaces.

USEPA Hazardous
Waste Number

Hazardous Waste

K062	Spent pickle liquor generated by steel finishing operations of facilities within the iron and steel industry (SIC Codes 331 and 332) (as defined in 35 Ill. Adm. Code 720.110).
K069	Emission control dust/sludge from secondary lead smelting.
K071	Brine purification muds from the mercury cell process in chlorine production, where separately pre-purified brine is not used.
K083	Distillation bottoms from aniline production.
K084	Wastewater treatment sludges generated during the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.
K086	Solvent washes and sludges, caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps and stabilizers containing chromium and lead.
K087	Decanter tank tar sludge from coking operations.
K093	Distillation light ends from the production of phthalic anhydride from ortho-xylene.
K094	Distillation bottoms from the production of phthalic anhydride from ortho-xylene.
K095	Distillation bottoms from the production of 1,1,1-trichloroethane.
K096	Heavy ends from the heavy ends column from the production of 1,1,1-trichloroethane.
K099	Untreated wastewater from the production of 2, 4-D.
K100	Waste leaching solution from acid leaching of emission control dust/sludge from secondary lead smelting.
K104	Combined wastewater streams generated from nitrobenzene/aniline production.
K106	Wastewater treatment sludge from the mercury cell process in chlorine production.

USEPA Hazardous Waste Number	Chemical Abstracts Number	Compound
P003	107-02-8	Acrolein
P070	116-06-3	Aldicarb
		ILD085349264
		DLPC 0311620007
		Page A-9 of A-15
P004	390-00-2	Aldrin
P005	107-18-6	Allyl alcohol
P008	504-24-5	4-Aminopyridine
P009	131-74-8	Ammonium picrate
P119	7803-55-6	Ammonium vanadate
P010	7778-39-4	Arsenic acid H ₃ As ₄
P011	1303-28-2	Arsenic pentoxide
P012	1327-53-3	Arsenic trioxide
P013	542-62-1	Barium cyanide
		alpha-dimethyl-
P014	108-98-5	Benzenethiol
P028	100-44-7	Benzyl chloride
P015	7440-41-7	Beryllium
P021	592-01-8	Calcium cyanide
P022	75-15-0	Carbon disulfide
P095	75-44-5	Carbonic dichloride
P023	107-20-0	Chloroacetaldehyde
P024	106-47-8	p-Chloroaniline
P029	544-92-3	Copper cyanide
P030		Cyanides (soluble cyanide salts), not otherwise specified
P031	460-19-5	Cyanogen
P033	506-77-4	Cyanogen chloride
P037	60-57-1	Dieldrin
P041	311-45-5	Diethyl-p-nitrophenyl phosphate
P040	297-97-2	O,O-Diethyl O-pyrazinyl phosphorothioate
P043	55-91-4	Disopropylfluorophosphate (DFP)
P048	51-28-5	2,4-Dinitrophenol
P039	298-04-4	Disulfoton
P050	115-29-7	Endosulfan
P051	72-20-8	Endrin
P042	51-43-4	Epinephrine
P101	107-12-0	Ethyl cyanide

USEPA Hazardous Waste Number	Chemical Abstracts Number	Compound
P097	52-85-7	Famphur
P058	62-74-8	Fluoroacetic acid, sodium salt
P062	757-58-4	Hexaethyl tetraphosphate
P063	74-90-8	Hydrogen cyanide
P068	60-34-4	Methyl hydrazine
P064	624-83-9	Methyl isocyanate
P069	75-86-5	2-Methyl lactonitrile
P071	298-00-0	Methyl parathion
P072	86-88-4	alpha-Naphthylthiourea
P074	557-19-7	Nickel cyanide
P075	P54-11-5	Nicotine, and salts
P077	100-01-6	p-Nitroaniline
P078	10102-44-0	Nitrogen dioxide
P076	10102-43-9	Nitrogen oxide NO
P081	55-63-0	Nitroglycerine (R)
P082	62-75-9	N-Nitrosodimethylamine
P087	20816-12-0	Osmium tetroxide
P089	56-38-2	Parathion
P092	62-38-4	Phenylmercury acetate
P093	103-85-5	Phenylthiourea
P094	298-02-2	Phorate
P096	7803-51-2	Phosphine
P098	151-50-8	Potassium cyanide
P099	506-61-6	Potassium silver cyanide
P101	107-12-0	Propanenitrile
P102	107-19-7	Propargyl alcohol
P067	75-55-8	1,2-Propylenimine
P104	506-64-9	Silver cyanide
P105	26628-22-8	Sodium azide
P106	143-33-9	Sodium cyanide
P108	P57-24-9	Strychnine and salts
P110	78-00-2	Tetraethyl lead
P111	107-49-3	Tetraethylpyrophosphate
P112	509-14-8	Tetranitromethane (R)
P113	1314-32-5	Thallic oxide
P114	12039-52-0	Thallium(I) selenite
P115	7446-18-6	Thallium (I) sulfate
P123	8001-35-2	Toxaphene
P118	75-70-7	Trichloromethanethiol
P120	1314-62-1	Vanadium pentoxide
P121	557-21-1	Zinc cyanide
P122	1314-84-7	Zinc phosphide
		Zn ₃ P ₂ -, when present at concentrations greater than 10%

USEPA Hazardous Waste Number	Chemical Abstracts Number	Compound
U001	75-07-0	Acetaldehyde
U002	67-64-1	Acetone
U003	75-05-8	Acetonitrile
U004	98-86-2	Acetophenone
U005	53-96-3	2-Acetylaminofluorene
U006	75-36-5	Acetyl chloride
U007	79-06-1	Acrylamide
U008	79-10-7	Acrylic acid
U009	107-13-1	Acrylonitrile
U011	61-82-5	Amitrole
U012	62-53-3	Aniline
U014	492-80-8	Auramine
U015	115-02-6	Azaserine
U017	98-87-3	Benzyl chloride
U018	56-55-3	Benzyl[a]anthracene
U094	57-97-6	Benzyl[a]anthracene, 7,12-dimethyl-
U093	60-11-7	Benzenamine, N,N-dimethyl- 4-(phenylazo)-
U181	99-55-8	Benzenamine, 2-methyl-5-nitro
U019	71-43-2	Benzene
U035	305-03-3	Benzenebutanoic acid, 4-[bis(2-chloroethyl) amino]-
U020	98-09-9	Benzenesulfonyl chloride
U207	95-94-3	Benzene, 1,2,4, 5-tetrachloro-
U021	92-87-5	Benzidene
U022	50-32-8	Benzo[a]pyrene
U197	106-51-4	p-Benzoquinone
U023	98-07-7	Benzotrichloride
U225	75-25-2	Bromoform
U030	101-55-3	4-Bromophenyl phenyl ether
U031	71-36-3	1-Butanol
U053	4170-30-3	2-Butanol
U136	75-60-5	Cacodylic acid
U032	13765-19-0	Calcium chromate
U211	56-23-5	Carbon tetrachloride

USEPA Hazardous Waste Number	Chemical Abstracts Number	Compound
U034	75-87-6	Chloral
U035	305-03-3	Chlorambucil
U036	57-74-9	Chlordane alpha and gamma isomers
U037	108-90-7	Chlorobenzene
U038	510-15-6	Chlorobenzilate
U039	59-50-7	p-Chloro-m-cresol
U044	67-66-3	Chloroform
U046	107-30-2	Chloromethyl methyl ether
U047	91-58-7	beta-Chloronaphthalene
U048	95-57-8	o-Chlorophenol
U049	3165-93-3	4-chloro-o-toluidine, hydrochloride
U050	218-01-9	Chrysene
U051		Creosote
U052	1319-77-3	Cresol (Cresylic acid)
U053	4170-30-3	Crotonaldehyde
U055	98-82-8	Cumene
U246	506-68-3	Cyanogen bromide CN
U056	110-82-7	Cyclohexane
U057	108-94-1	Cyclohexanone
U240	P94-75-7	2,4-D, salts and esters
U060	72-54-8	DDD
U061	50-29-3	DDT
U063	53-70-3	Dibenz[a,h]anthracene
U064	189-55-9	Dibenzo[a,i]pyrene
U069	84-74-2	Dibutyl phthalate
U070	95-50-1	o-Dichlorobenzene
U071	541-73-1	m-Dichlorobenzene
U072	106-46-7	p-Dichlorobenzene
U078	75-35-4	1,1-Dichloroethylene
U079	156-60-5	1,2-Dichloroethylene
U025	111-44-4	Dichloroethyl ether
U027	108-60-1	Dichloroisopropyl ether
U024	111-91-1	Dichloromethoxy ethane
U081	120-83-2	2,4-Dichlorophenol
U082	87-65-0	2,6-Dichlorophenol
U084	542-75-6	1,3-Dichloropropene
U085	1464-53-5	1,2:3,4-Diepoxybutane (I,T)
U108	123-91-1	1,4-Diethyleneoxide
U028	117-81-7	Diethylhexyl phthalate

USEPA Hazardous Waste Number	Chemical Abstracts Number	Compound
U086	1615-80-1	N,N-Diethylhydrazine
U087	3288-58-2	O,O-Diethyl S-methyl dithiophosphate
U088	84-66-2	Diethyl phthalate
U089	56-53-1	Diethylstilbestrol
U090	94-58-6	Dihydrosafrole
U092	124-40-3	Dimethylamine (I)
U096	80-15-9	alpha, alpha- Dimethylbenzylhydro peroxide (R)
U101	105-67-9	2,4-Dimethylphenol
U102	131-11-3	Dimethyl phthalate
U103	77-78-1	Dimethyl sulfate
U105	121-14-2	2,4-Dinitrotoluene
U106	606-20-2	2,6-Dinitrotoluene
U107	117-84-0	Di-n-octyl phthalate
U108	123-91-1	1,4-Dioxane
U041	106-89-8	Epichlorohydrin
U076	75-34-3	Ethane, 1,1-dichloro-
U208	630-20-6	Ethane, 1,1,1, 2-tetrachloro-
U209	79-34-5	Ethane, 1,1,2, 2-tetrachloro-
U226	71-55-6	Ethane, 1,1,1-trichloro-
U210	127-18-4	Ethene, tetrachloro-
U112	141-78-6	Ethyl acetate (I)
U113	140-88-5	Ethyl acrylate (I)
U238	51-79-6	Ethyl carbamate (urethane)
U117	60-29-7	Ethyl ether
U067	106-93-4	Ethylene dibromide
U077	107-06-2	Ethylene dichloride
U359	110-80-5	Ethylene glycol monoethyl ether
U118	97-63-2	Ethyl methacrylate
U120	206-44-0	Fluoranthene
U122	50-00-0	Formaldehyde
U123	64-18-6	Formic acid
U124	110-00-9	Furan
U125	98-01-1	Furfural (I)
U127	118-74-1	Hexachlorobenzene
U128	87-68-3	Hexachlorobutadiene

USEPA Hazardous Waste Number	Chemical Abstracts Number	Compound
U130	77-47-4	Hexachlorocyclopentadiene
U131	67-72-1	Hexachloroethane
U133	302-01-2	Hydrazine
U134	7664-39-3	Hydrogen fluoride (C,T)
U135	7783-06-4	Hydrogen sulfide
U140	78-83-1	Isobutyl alcohol
U141	120-58-1	Isosafrole
U144	301-04-2	Lead acetate
U145	7446-27-7	Lead phosphate
U146	1335-32-6	Lead subacetate
U129	58-89-9	Lindane
U147	108-31-6	Maleic anhydride
U148	123-33-1	Maleic hydrazide
U151	7439-97-6	Mercury
U068	74-95-3	Methane, dibromo-
U080	75-09-2	Methane, dichloro-
U138	74-88-4	Methane, iodo-
U154	67-56-1	Methanol
U247	72-43-5	Methoxychlor
U157	56-49-5	3-Methylcholanthrene
U158	101-14-4	4,4'-Methylenebis(2-chloro aniline)
U159	78-93-3	Methyl ethyl ketone (MEK)
U160	1338-23-4	Methyl ethyl ketone peroxide
U161	108-10-1	Methyl isobutyl ketone
U162	80-62-6	Methyl methacrylate
U010	50-07-7	Mitomycin C
U168	91-59-8	2-Naphthalenamine
U165	91-20-3	Naphthalene
U169	98-95-3	Nitrobenzene (I,T)
U170	100-02-7	p-Nitrophenol
U171	79-46-9	2-Nitropropane (I,T)
U182	123-63-7	Paraldehyde
U183	608-93-5	Pentachlorobenzene
U185	82-68-8	Pentachloronitrobenzene (PCB)
U187	62-44-2	Phenacetin
U188	108-95-2	Phenol

USEPA Hazardous Waste Number	Chemical Abstracts Number	Compound
U104	25550-58-7	Phenol, 2,4-dinitro-
U190	85-44-9	Phthalic anhydride
U083	78-87-5	Propane, 1,1-dichloro
U196	110-86-1	Pyridine
U200	50-55-5	Reserpine
U201	108-46-3	Resorcinol
U202	P81-07-2	Saccharin and salts
U203	94-59-7	Safrole
U204	7783-00-8	Selenium dioxide
U205	7488-56-4	Selenium sulfide
U207	95-94-3	1,2,4,5-Tetrachlorobenzene
U208	630-20-6	1,1,1,2-Tetrachloroethane
U209	79-34-5	1,1,2,2-Tetrachloroethane
U210	127-18-4	Tetrachloroethylene
U213	109-99-9	Tetrahydrofuran
U214	563-68-8	Thallium (I) acetate
U215	6533-73-9	Thallium (I) carbonate
U216	7791-12-0	Thallium (I) chloride TlCl
U217	10102-45-1	Thallium (I) nitrate
U219	62-56-6	Thiourea
U220	108-88-3	Toluene
U221	25376-45-8	Toluenediamine
U223	26471-62-5	Toluene diisocyanate
U328	95-53-4	o-Toluidine
U353	106-49-0	p-toluidine
U222	636-21-5	o-Toluidine hydrochloride
U227	79-00-5	1,1,2-Trichloroethane
U228	79-01-6	Trichloroethylene
U121	75-69-4	Trichloromonofluoromethane
U234	99-35-4	1,3,5-Trinitrobenzene (R,T)
U236	72-57-1	Trypan blue
U043	75-01-4	Vinyl chloride
U239	1330-20-7	Xylene
U249	1314-84-7	Zinc phosphide Zn ₃ P ₂ , when present at concentrations of 10% or less

CLS:1at/sp/109q,1-104

ATTACHMENT B
EXAMPLES OF INCOMPATIBLE WASTES
AT
HERITAGE ENVIRONMENTAL SERVICES
LEMONT, ILLINOIS
ILD085349264
DLPC 0311620007

ATTACHMENT B

INCOMPATIBLE WASTES

Many hazardous wastes, when mixed with other waste or materials at a hazardous waste facility, can produce effects which are harmful to human health and the environment, such (1) heat or pressure, (2) fire or explosion, (3) violent reaction, (4) toxic dusts, mists, fumes, or gases, or (5) flammable fumes or gases.

Below are examples of potentially incompatible waste groups and materials, along with the harmful consequences which result from mixing materials in one group with materials in another group. The list is intended as a guide to indicate the need for special precautions when managing these potentially incompatible waste materials or components.

This list is not intended to be exhaustive. The Permittee must, as the regulations require, adequately analyze his wastes so that he can avoid creating uncontrolled substances or reactions of the type listed below, whether they are listed below or not.

The waste streams accepted at Heritage Environmental Services are from the following chemical groups:

<u>Reactivity Group Number</u>	<u>Group Name</u>
1	Acids, Mineral, Non-oxidizing
2	Acids, Mineral, Oxidizing
3	Acids, Organic
4	Alcohols and Glycols
5	Aldehydes
6	Amides
7	Amines, Aliphatic and Aromatic
8	Azo Compounds, Diazo Compounds, and Hydrazines
9	Carbamates
10	Caustics
11	Cyanides
12	Dithiocarbamates
13	Esters
14	Esters
15	Fluorides, Inorganic
16	Hydrocarbons, Aromatic
17	Halogenated Organics
18	Isocyanates
19	Ketones
20	Mercaptans and Other Organic Sulfides
21	Metals, Alkali and Alkaline Earth, Elemental and Alloys
22	Metals Other Elemental and Alloys in the Form of Powders, Vapors or Sponges

23	Metals, Other Elemental, and Alloy, as Sheets, Rods, Moldings, Drops, etc.
24	Metals and Metal Compounds, Toxic
25	Nitrides
26	Nitriles
27	Nitro Compounds
28	Hydrocarbon, Aliphatic, Unsaturated
29	Hydrocarbon, aliphatic, Saturated
30	Peroxides and Hydroperoxides, Organic
31	Phenols and Creosols
32	Organophosphates, Phosphothioates and Phosphodithioates
33	Sulfides, Inorganic
34	Epoxides
101	Combustible and Flammable Materials, Miscellaneous
102	Explosives
103	Polymerizable Compounds
104	Oxidizing Agents, Strong
105	Reducing Agents, Strong
106	Water and Mixtures Containing Water
107	Water Reactive Substances

Possible incompatible groups and their reactions if mixed with waste streams accepted at Heritage Environmental Services are the following:

The first column of the list identifies the binary combinations of the wastes by Reactivity Group Numbers (RGN). The second column lists the corresponding adverse reaction consequences.

Reactivity Group No. Combination	Adverse Reaction and Consequences
1 + 4	<u>MINERAL ACIDS + ALCOHOLS AND GLYCOLS</u> Dehydration reactions and displacement with the halide result in heat generation.
1 + 5	<u>MINERAL ACIDS + ALDEHYDES</u> Condensation reactions cause heat generation. Acrolein and other B-unsaturated aldehydes polymerize readily.
1 + 6	<u>MINERAL ACIDS + AMIDE</u> Hydrolysis of amide to the corresponding carboxylic acid results in an exotherm.

1 + 7 MINERAL ACIDS + AMINES

The acid base reaction between these two types of compounds forming the ammonium salts may be sufficiently exothermic to cause a hazard.

1 + 8 MINERAL ACIDS + AZO COMPOUNDS

Amyl azo and diazo compounds decompose exothermically upon mixing with strong mineral acids to yield nitrogen gas and the corresponding amyl cation. Aliphatic azo and diazo compounds, particularly diazo-alkanes, can polymerize violently with heat generation. Organo azides can also decompose exothermically with strong acid to form nitrogen gas and the respective cations. An exotherm also results from the acid-base reaction of hydrazines with mineral acids as hydrazines are comparable in base strength to ammonia. Diazomethane is a particularly reactive compound in this group.

1 + 9 MINERAL ACIDS + CARBAMATES

Carbamates can undergo hydrolysis as well as decarboxylation upon mixing with strong mineral acids. Both reactions are exothermic and the latter can generate pressure if it occurs in a closed container.

1 + 10 MINERAL ACIDS + CAUSTICS

The acid-base reaction between strong mineral acids and strong caustics is extremely exothermic and many times violent. Fires can result if the caustic substance is an alkoxide.

1 + 11 MINERAL ACIDS + CYANIDE

Inorganic cyanides rapidly form extremely toxic and flammable hydrogen cyanide gas upon contact with mineral acids.

1 + 12 MINERAL ACIDS + DITHIOCARBAMATES

Acid hydrolysis of dithiocarbamate heavy metal salts with strong mineral acids yields extremely flammable and toxic carbon disulfide gas. An exotherm can be expected from the reaction.

1 + 13 MINERAL ACIDS + ESTERS

Strong mineral acids in excess will cause hydrolysis and decomposition of esters with heat generation.

1 + 14 MINERAL ACIDS + ETHERS

Ether may undergo hydrolysis with strong acids exothermically.

1 + 15 MINERAL ACIDS + FLUORIDES

Most inorganic fluorides yield toxic and corrosive hydrogen fluoride gas upon reaction with strong mineral acids.

1 + 17 MINERAL ACIDS + HALOGENATED ORGANICS

Strong mineral acids in excess may cause decomposition with generation of heat and toxic fumes of hydrogen halides.

1 + 18 MINERAL ACIDS + ISOCYANATES

Acid catalyzed decarboxylation as well as vigorous decomposition can occur upon mixing of isocyanates with strong mineral acids.

1 + 19 MINERAL ACID + KETONE

Acid catalyzed aldol condensation occurs exothermically.

1 + 20 MINERAL ACIDS + MERCAPTANS

Alkyl mercaptans are particularly reactive with mineral acids yielding extremely toxic and flammable hydrogen sulfide gas. Other mercaptans can yield hydrogen sulfide with excess strong acids. Excess strong acid can also result in decomposition and generation of toxic fumes of sulfur oxides.

1 + 21 MINERAL ACIDS + ALKALI and ALKALINE EARTH METALS

The reaction of strong mineral acids with alkali and alkaline earth metals in any form will result in a vigorous exothermic generation of flammable hydrogen gas and possible fire.

1 + 22 MINERAL ACIDS + METAL POWDERS, VAPORS, OR SPONGES

Reactions of strong mineral acids with finely divided metals or metals in a form with high surface area will result in vigorous generation of flammable hydrogen gas and possible explosion caused by the heat of reaction.

1 + 23 MINERAL ACIDS + METAL SHEETS, RODS, DROPS, ETC.

Strong mineral acids will form flammable hydrogen gas upon contact with metals in the form of plates, sheets, chunks, and other bulk forms. The heat of reaction may ignite the gas formed.

1 + 24 MINERAL ACIDS + TOXIC METALS

Mineral acids tend to solubilize toxic metals and metal compounds releasing previously fixed toxic constituents to the environment.

1 + 25 MINERAL ACIDS + NITRIDES

The aqueous fraction of strong mineral acids will react with nitrides evolving caustic and flammable ammonia gas. The acid-base reaction of mineral acids and nitrides can also evolve much heat and ammonia.

1 + 26 MINERAL ACIDS + NITRILES

Exothermic hydrolysis of nitriles to the corresponding carboxylic acid and ammonium ion is known to occur with mineral acids. Extremely toxic and flammable hydrogen cyanide gas may be evolved with such compounds as acetone, cyanohydrin and propionitriles.

1 + 28 MINERAL ACIDS + UNSATURATED ALIPHATICS

Addition of mineral acids to alkanes usually results in exothermic acid catalyzed hydration and partial addition of the hydrogen halide or sulfates. Acetylenes are also susceptible to exothermic acid catalyzed hydration forming the corresponding aldehyde or ketone, with possible addition of the hydrogen halide in the case of halogen acids.

1 + 30 MINERAL ACIDS + ORGANIC PEROXIDES

Strong mineral acids can react with organic peroxides and hydro- peroxides with enough heat generated to cause explosive decomposition in the more unstable compounds. Oxygen can also be generated.

1 + 31 MINERAL ACIDS + PHENOLS AND CRESOLS

Exothermic sulfonation reactions can occur with addition of sulfonic acid to phenols and cresols, substitution of the hydroxyl with a halide can occur with addition of the halogen acids. Excess strong acid can decompose phenols and cresols with heat generation.

1 + 32 MINERAL ACIDS + ORGANOPHOSPHATES

Excess strong mineral acid can cause decomposition of organophosphates, phosphothioate and phosphodithioates with heat generation and possibly toxic gas formation.

1 + 33 MINERAL ACIDS + SULFIDES

Extremely toxic and flammable hydrogen sulfide gas results from the combination of mineral acids and sulfides.

1 + 34 MINERAL ACIDS + EPOXIDES

Acid catalyzed cleavage can occur initiating polymerization with much heat generated.

1 + 101 MINERAL ACIDS + COMBUSTIBLE MATERIALS

Dehydration and decomposition on addition of excess strong mineral acid can cause heat and possibly toxic gas generation.

1 + 102 MINERAL ACIDS + EXPLOSIVES

Many explosives are extremely heat sensitive and can be detonated by heat generated from the action of strong mineral acids on these compounds.

1 + 102 MINERAL ACIDS + POLYMERIZABLE COMPOUNDS

Strong mineral acids can act as initiators in the polymerization of these compounds. The reactions are exothermic and can occur violently.

1 + 104 MINERAL ACIDS + STRONG OXIDIZING AGENTS

Many combinations of strong mineral acids and strong oxidizing agents are sensitive to heat and shock and may decompose violently. The halogen acids may be oxidized yielding highly toxic and corrosive halogen gases, accompanied by heat generation.

1 + 105 MINERAL ACIDS + STRONG REDUCING AGENTS

Many reducing agents form flammable hydrogen gas on contact with mineral acids. The heat generated can cause spontaneous ignition. Some reducing agents such as metal phosphides and inorganic sulfides evolve extremely toxic and flammable fumes of phosphine and hydrogen sulfides, respectively.

1 + 106 MINERAL ACIDS + WASTE AND MISCELLANEOUS AQUEOUS MIXTURES

Much heat can be evolved upon solubilization and hydrolysis of these acids.

1 + 107 MINERAL ACIDS + WATER REACTIVES

Group 107 compounds not only share the characteristic that hazardous consequences can result from their contact with water; they are also generally extremely reactive with most of the other compounds listed. In many cases much heat is generated along with toxic and/or flammable gases. Explosions may occur, or highly unstable mixtures may result. For this reason, it is recommended that Group 107 compounds be completely isolated from the other compounds. Many of these Group 107 compounds are also pyrophoric, especially those which are also classed as strong reducing agents.

2 + 3 OXIDIZING MINERAL ACIDS + ORGANIC ACIDS

These mineral acids can oxidize the hydrocarbon moiety of organic acids with resulting heat and gas formation.

2 + 4 OXIDIZING MINERAL ACIDS + ALCOHOLS and GLYCOLS

Oxidation of the hydrocarbon moiety can occur resulting in heat and gas formation. Nitration with nitric acid can take place in the presence of sulfuric acid forming extremely unstable nitro compounds.

2 + 5 OXIDIZING MINERAL ACIDS + ALDEHYDES

Oxidation of the hydrocarbon moiety can occur resulting in heat and gas formation.

2 + 6 OXIDIZING MINERAL ACIDS + AMIDES

Oxidation with excess acid can result in heat generation and formation of toxic fumes of nitrogen oxides.

2 + 7 OXIDIZING MINERAL ACIDS + AMINES

The acid-base reaction produces much heat and exhaustive oxidation results in generation of heat and toxic fumes of nitrogen oxide.

2 + 8 OXIDIZING MINERAL ACIDS + AZO COMPOUNDS

Azo compounds and diazo compounds are easily decomposed by strong acids evolving much heat and nitrogen gas. They are very susceptible to oxidation and can evolve toxic fumes of nitrogen oxides upon exhaustive oxidation. Hydrazines are especially susceptible to oxidation and inflame upon contact with oxidizing agents. Many of the compounds in this group such as diazomethane and the azides are very unstable and can decompose explosively upon heating.

2 + 9 OXIDIZING MINERAL ACIDS + CARBAMATES

Carbamates can undergo exothermic hydrolysis and decarboxylation upon mixing with these acids. Exhaustive oxidation can also result in formation of toxic fumes of nitrogen oxides, and sulfur oxides in the case of thiocarbamates.

2 + 10 OXIDIZING MINERAL ACIDS + CAUSTICS

The neutralization reaction can be violent with evolution of much heat.

2 + 11 OXIDIZING MINERAL ACIDS + CYANIDES

Evolution of extremely toxic and flammable hydrogen cyanide gas will occur before oxidation.

2 + 12 OXIDIZING MINERAL ACIDS + DITHIOCARBAMATES

Acids will cause decomposition of dithiocarbamates with evolution of extremely flammable carbon disulfide. Significant heat may be generated by the oxidation and decomposition to ignite the carbon disulfide.

2 + 13 OXIDIZING MINERAL ACIDS + ESTERS

Exhaustive oxidation of esters can cause decomposition with heat and possible ignition of the more flammable esters. Conversion to the organic acid and decarboxylation can also occur.

2 + 14 OXIDIZING MINERAL ACIDS + ETHERS

Heat generated from the exhaustive oxidation of ethers can ignite the more flammable ethers. These compounds can also undergo exothermic acid catalyzed cleavage.

2 + 15 OXIDIZING MINERAL ACIDS + FLUORIDES

Gaseous hydrogen fluoride can result from a combination of inorganic fluorides and these acids. Hydrogen fluoride is extremely corrosive and toxic. Some heat can also be evolved.

2 + 16 OXIDIZING MINERAL ACIDS + AROMATIC HYDROCARBONS

Oxidation of the hydrocarbon may produce enough heat to ignite the mixture.

2 + 17 OXIDIZING MINERAL ACIDS + HALOGENATED ORGANICS

These acids can cause oxidation and decomposition of halogenated organics resulting in heat and generation of extremely toxic fumes of hydrogen chloride, phosgene, and other gaseous halogenated compounds.

2 + 18 OXIDIZING MINERAL ACIDS + ISOCYANATES

Isocyanates may be hydrolyzed by the water in concentrated acids to yield heat and carbon dioxide. They may also be oxidized by these acids to yield heat and toxic nitrogen oxides.

2 + 19 OXIDIZING MINERAL ACIDS + KETONES

Ketones can undergo exothermic aldol condensations under acidic conditions. Oxidizing acids can cleave the ketone to give a mixture of acids. Excess acid can cause complete decomposition yielding much heat and gas. Fire can also result.

2 + 20 OXIDIZING MINERAL ACIDS + MERCAPTANS

Extremely toxic and flammable hydrogen sulfide gas can be formed by the action of the acid on mercaptans. Oxidation of mercaptans and other sulfur compounds can result in formation of toxic sulfur dioxide and heat.

2 + 21 OXIDIZING MINERAL ACIDS + ALKALI and ALKALINE EARTH METALS

Extremely flammable hydrogen gas can be generated upon contact of acids and these metals. The reaction of such a strong oxidizing agent and strong reducing agents can be so violent as to cause a fire and possibly an explosion.

2 + 22 OXIDIZING MINERAL ACIDS + METAL POWDERS, VAPORS, and SPONGES

The action of acid on these metals produces hydrogen gas and heat. Due to the large surface area of these forms of metals, the reaction can occur with explosive violence.

2 + 23 OXIDIZING MINERAL ACIDS + METAL SHEETS, RODS, DROPS, ETC.

The reaction of acids on metals as sheets, plates, and other bulk forms can evolve hydrogen gas and some heat. Although the reaction proceeds much slower than in the case of powders, a definite fire hazard exists. Of the metals listed in Group 23, only zirconium is not attacked by nitric acid.

2 + 24 OXIDIZING MINERAL ACIDS + TOXIC METALS

Many of the compounds in Group 24 are very easily solubilized by strong acids, consequently, the toxic metal compounds are converted into forms which are more easily transported and assimilated. Some of these compounds have other hazardous properties and are classified elsewhere.

2 + 25 OXIDIZING MINERAL ACIDS + NITRIDES

Nitrides are extremely strong bases and will participate in an acid-base reaction evolving much heat. This reaction can proceed with explosive violence due to the instability of metal nitrides and the generation of flammable ammonia gas.

2 + 26 OXIDIZING MINERAL ACIDS + NITRILES

The primary hazard in mixing these types of compounds appears to be oxidation of the nitriles with generation of heat and toxic fumes of nitrogen oxides. In some cases such as acetone cyanohydrin and propionitrile, extremely toxic hydrogen cyanide gas is known to result from mixing with strong acids. These fumes are also flammable. Mixtures of nitric acid and acetonitrile are high explosives.

2 + 27 OXIDIZING MINERAL ACIDS + NITRO COMPOUNDS

These acids can decompose nitro compounds to produce heat and toxic fumes of nitrogen oxide. The oxidation can be extremely violent. Mixtures of nitric acid and nitroaromatics are known to exhibit explosive properties. Mixtures of some nitroalkanes (nitromethane) with nitric acid can also be detonated.

2 + 28 OXIDIZING MINERAL ACIDS + UNSATURATED ALIPHATICS

Aliphatic unsaturated hydrocarbons are extremely susceptible to oxidation resulting in heat generation and fire.

2 + 29 OXIDIZING MINERAL ACIDS + SATURATED ALIPHATICS

Aliphatic saturated hydrocarbons are easily oxidized by these acids yielding heat and carbon dioxide.

2 + 30 OXIDIZING MINERAL ACIDS + ORGANIC PEROXIDES

The lower molecular weight organic peroxides and hydroperoxides are very sensitive to heat and shock. Mixing of oxidizing mineral acids with such unstable compounds can cause heat generation due to the oxidizing capacity of the acids and acid catalyzed hydrolysis. These reactions can cause explosive decomposition.

2 + 31 OXIDIZING MINERAL ACIDS + PHENOLS AND CRESOLS

Phenols and cresols are easily oxidized and excess oxidizing acids can result in much heat generation.

2 + 32 OXIDIZING MINERAL ACIDS + ORGANOPHOSPHATES

Excess oxidizing acid can decompose these compounds to yield heat and toxic fumes of nitrogen oxides, sulfur oxides, and phosphorous oxides.

2 + 33 OXIDIZING MINERAL ACIDS + SULFIDES

Toxic and flammable hydrogen sulfide gas can be generated by the action of these acids on inorganic sulfides. These sulfides can also be oxidized exothermically to sulfur dioxide, also a toxic gas. This reaction can occur very violently.

2 + 34 OXIDIZING MINERAL ACIDS + EPOXIDES

Epoxides are very easily cleaved by acids with heat generation. This ring opening can be the initiating step in the formation of epoxy resins, and uncontrolled polymerization can result in extreme heat generation. The oxidation capacity of these acids can cause ignition of the epoxides.

2 + 101 OXIDIZING MINERALS ACIDS + COMBUSTIBLE MATERIALS

Oxidizing minerals acids can decompose substances in Group 101 with heat generation and possibly fire. Toxic gases may also be formed as combustion products, but the type of gas will depend upon the composition of these miscellaneous substances.

2 + 102 OXIDIZING MINERAL ACIDS + EXPLOSIVES

Such strong acids can easily detonate compounds in this group of explosives due to the heat generated upon mixing. The oxidizing character of these acids merely enhances the possibility of detonation.

2 + 103 OXIDIZING MINERAL ACIDS + POLYMERIZABLE COMPOUNDS

As in note 1 + 102, these acids can act as initiators in the polymerization of many compounds. These factors are exothermic and can occur violently. In addition, these acids can oxidize the compounds of Group 103, producing more heat and possible toxic fumes.

2 + 105 OXIDIZING MINERAL ACIDS + STRONG REDUCING AGENTS

Mixing of compounds in these two groups can result in very violent, extremely exothermic reactions. Fires and explosions can result.

2 + 106 OXIDIZING MINERAL ACIS + WATER AND WATER MIXTURES

Much heat can be evolved from the dissolution of these acids by water.

3 + 4 ORGANIC ACIDS + ALCOHOLS AND GLYCOLS

The organic acids of primary concern in this combination are those with a-substituted halogens such as chloroacetic acid, and a- and b-substituted carboxyl groups such as oxalic acid and malonic acid. These acids are comparable in strength to strong mineral acids and can catalyze dehydration and esterification in alcohols and glycols with heat generation. Polyhydric alcohols and polybasic acids can polymerize by

esterification with much heat evolved. Due to their acid strength, these halo organic acids would be more accurately compared to acids of Group 1 in terms of reactivity. Hereafter, refer to Group 1 to find the reactivity of these acids. The nonsubstituted monobasic aliphatic and aromatic acids are relatively nonreactive with alcohols and glycols and esterify only with strong mineral acids or other catalysts present.

3 + 5 ORGANIC ACIDS + ALDEHYDES

Exothermic condensation reactions can occur between these two types of compounds. The acidic characteristic of the organic acids may be sufficient to catalyze the reaction. Polybasic and unsaturated acids are susceptible to polymerization under these conditions, resulting in much heat generated.

3 + 7 ORGANIC ACIDS + AMINES

An acid-base reaction between the stronger acids and amines can generate some heat. Discarboxylic acids and diamines can copolymerize with heat generation.

3 + 8 ORGANIC ACIDS + AZO COMPOUNDS

Aliphatic and aromatic diazo compounds are readily decomposed by organic acids releasing heat and nitrogen gas as reaction products. Azo compounds are not sensitive to such decomposition. Hydrazine azide is extremely sensitive to heat or shock. An acid-base reaction with hydrazine can produce some heat.

3 + 10 ORGANIC ACIS + CAUSTICS

Acid-base reactions produce hat.

3 + 11 ORGANIC ACIDS + CYANIDES

Hydrogen cyanide, an extremely toxic and flammable gas, is generated upon mixing.

3 + 12 ORGANIC ACIDS + DITHIOCARBAMATES

Toxic and flammable carbon disulfide can be formed upon contact of dithiocarbamate with the stronger organic acids. Although CS₂ is a liquid at room temperature, it has a very high vapor pressure. Some heat can be generated from the hydrolysis of the dithiocarbamate salts.

3 + 15 ORGANIC ACIDS + FLUORIDES

Toxic and corrosive hydrogen fluoride fumes can be generated by the action of strong organic acids upon metal fluoride salts. Alkali metal fluorides are especially susceptible to decomposition in this manner.

3 + 18 ORGANIC ACIDS + ISOCYANATES

Some water is normally associated with organic acids, and this can cause hydrolysis of isocyanates to carbon dioxide and amines with some heat generated.

3 + 21 ORGANIC ACIDS + ALKALI AND ALKALINE EARTH METALS

Reaction of organic acids with these metals in any form can result in exothermic generation of flammable hydrogen gas and possible fire.

3 + 22 ORGANIC ACIDS + METAL POWDERS, VAPORS AND SPONGES

The stronger organic acids can liberate flammable hydrogen gas upon contact with metals in these forms. The heat of reaction can cause explosions.

3 + 24 ORGANIC ACIDS + TOXIC METALS

The stronger organic acids can solubilize some of these compounds and complex with the metal.

3 + 25 ORGANIC ACIDS + NITRIDES

An acid-base reaction can occur resulting in heat and possible evolution of flammable ammonia gas. Many of these nitrides are explosively unstable and can be detonated by the heat of reaction.

3 + 26 ORGANIC ACIDS + NITRILES

Strong organic acids can convert nitriles to their corresponding organic acid with some heat generation.

3 + 33 ORGANIC ACIDS + SULFIDES

Extremely toxic and flammable hydrogen sulfide and some heat can be generated.

3 + 34 ORGANIC ACIDS + EPOXIDES

Acid catalyzed cleavage of the epoxide ring can initiate violent polymerization with much heat generated.

3 + 102 ORGANIC ACIDS + EXPLOSIVES

Strong organic acids can decompose compounds in this group resulting in enough heat to cause detonation.

3 + 103 ORGANIC ACIDS + POLYMERIZABLE COMPOUNDS

Strong organic acids can initiate cationic polymerization. Dicarboxylic acids can copolymerize with diamines as in the reaction of adipic acid and hexamethylene diamine to form nylon 6,6.

3 + 104 ORGANIC ACIDS + REDUCING AGENTS

The hydrocarbon moiety of the organic acids are susceptible to decomposition by strong oxidizing agents releasing heat and gas. The gas produced can be toxic if the acid contains halogens such as dichlorophenoxy acetic acid, or if it contains other hetero atoms.

3 + 105 ORGANIC ACIDS + REDUCING AGENTS

Carboxylic acids are easily reduced by lithium aluminum hydride to the corresponding alcohols with some heat generation. Other reducing agents require more vigorous reaction conditions. Flammable hydrogen gas can be produced from the extractions of the hydroxyl proton and the B-hydrogens.

4 + 8 ALCOHOLS and GLYCOLS + AZO COMPOUNDS

Alkyl and aryl diazo compounds are susceptible to replacement by alkoxy groups yielding nitrogen gas and various other compounds. Literature indicates that organic azides and hydrazines are generally immiscible with alcohols and glycols and do not react violently.

4 + 18 ALCOHOLS and GLYCOLS + ISOCYANATES

Polyhydric alcohols and polyisocyanates polymerize very readily due to the ease of addition reactions at the isocyanate group. Much heat can be evolved. Monohydric alcohols form carbamates with isocyanates with some evolution of heat.

4 + 21 ALCOHOLS and GLYCOLS + ALKALI and ALKALINE EARTH METALS

Alcohols and glycols decompose these active metals yielding flammable hydrogen gas and the corresponding metal alkoxides. The reaction with alkali metals can be violent with much heat generated and fire. These metal alkoxides are strongly caustic and easily hydrolyzed by water and acids yielding heat.

4 + 25 ALCOHOLS AND GLYCOLS + NITRIDES

Flammable ammonia gas is generated by the action of alcohols and glycols on nitrides. Most nitrides are very unstable and may be detonated by the heat of reaction.

4 + 30 ALCOHOLS AND GLYCOLS + ORGANIC PEROXIDES

Alcohols and glycols may be oxidized by these organic peroxides and hydroperoxides to yield heat and possibly fire.

4 + 34 ALCOHOLS and GLYCOLS + EPOXIDES

Traces of acid or base can catalyze polymerization of these compounds with heat.

4 + 104 ALCOHOLS and GLYCOLS + OXIDIZING AGENTS

Oxidation of alcohols and glycols with these strong oxidizing agents can produce heat and inflame or can form explosively unstable compounds.

4 + 105 ALCOHOLS and GLYCOLS + REDUCING AGENTS

The hydroxyl proton is easily extracted by these strong reducing agents to yield flammable hydrogen gas. In many cases, ignition occurs and sometimes explosions may also occur.

4 + 107 ALCOHOLS and GLYCOLS + WATER REACTIVES

See Note 1 + 107.

5 + 7 ALDEHYDES + AMINES

Exothermic condensation to form amines can occur. The reaction can be catalyzed by acid.

5 + 8 ALDEHYDES + AZO COMPOUNDS

Aliphatic diazo compounds, especially diazomethane, react with aldehydes to give ketones, ethylene oxide derivatives, and nitrogen gas. Aromatic diazo compounds can effect an electrophilic substitution on an aldehyde with heat and generation of nitrogen gas. Aldehydes and hydrazines can condense exothermically to form hydrazones.

5 + 10 ALDEHYDES + CAUSTICS

Aldehydes undergo self-condensation in combination with caustics and, in the case of acrolein, can result in violent polymerization. Much heat is evolved.

5 + 12 ALDEHYDES + DITHIOCARBAMATES

Not much is known about this combination. If these compounds do react, an amide and toxic and flammable carbon disulfide can result. This reaction may be acid catalyzed.

5 + 21 ALDEHYDES + ALKALI and ALKALINE EARTH METALS

Owing to the extreme reactivity of these metals and the carbonyl functionality of aldehydes, attack of the metal radical can occur at a number of sites including the oxygen and the α -hydrogen. Extraction of the α -hydrogens can result in generation of flammable hydrogen gas. Various other condensation reactions can be initiated by this substitution resulting in heat generation.

5 + 25 ALDEHYDES + NITRIDES

Nitrides are known to be extremely strong bases and can consequently catalyze condensation reactions liberating heat. with acrolein, uncontrolled self-polymerization can result. The labile α -hydrogens of aldehydes may be extracted forming flammable ammonia gas.

5 + 27 ALDEHYDES + NITRO COMPOUNDS

The aliphatic nitro compounds are somewhat susceptible to condensation with aldehydes resulting in some heat generation. Formaldehyde and nitromethane can react readily in this manner.

5 + 28 ALDEHYDES + UNSATURATED ALIPHATICS

At elevated temperatures, a Diels-Alder type reaction can take place between acrolein and 1,3-butadiene and may be exothermic.

5 + 30 ALDEHYDES + ORGANIC PEROXIDES

A mixture of aldehydes and hydroperoxides results in formation of α -hydroxy peroxides which are unstable to heat and stock. Acyl peroxides such as diacetyl peroxide can decompose with slight heating resulting in formation of CO_2 and methyl radicals. These radicals can abstract hydrogen from aldehydes and initiate a chain reaction and produce much heat. Alkyl and acyl peroxides can decompose in the same manner and initiate free radical reactions involving aldehydes to yield heat. Peroxy acids are very strong oxidizers in themselves and can react violently with aldehydes.

5 + 33 ALDEHYDES + SULFIDES

Aqueous sulfides can react readily with aldehydes to form gemhydroxythiols with much heat generated.

5 + 34 ALDEHYDES + EPOXIDES

An electrophilic ring opening is possible, but information is very scarce on this type of reaction.

5 + 104 ALDEHYDES + OXIDIZING AGENTS

Aldehydes are very easily oxidized by these compounds resulting in formation of the corresponding carboxylic acid or complete decomposition. In both cases, heat is evolved, and fires can result.

5 + 105 ALDEHYDES + REDUCING AGENTS

The labile α -hydrogens of the aldehydes may be extracted by some reducing agents to yield flammable hydrogen gas with some heat.

6 + 21 AMIDES + ALKALI and ALKALINE EARTH METALS

Alkali and alkaline earth metals can abstract a N-hydrogen forming flammable hydrogen gas. Some heat may be generated.

6 + 24 AMIDES + TOXIC METALS

Lower molecular weight amides which are liquid at room temperature are used as ionizing solvents and can solubilize salts of many toxic metal compounds.

6 + 104 AMIDES + OXIDIZING AGENTS

Exhaustive oxidation of amides can result in heat generation and evolution of toxic nitrogen oxide fumes.

6 + 105 AMIDES + REDUCING AGENTS

The N-hydrogen can be easily extracted by these reducing agents to yield heat and flammable hydrogen gas.

7 + 12 AMINES + DITHIOCARBAMATES

Little information is available in the literature reviewed. Reaction between these two groups may produce hazardous consequences. It is recommended that mixing be avoided pending laboratory assessment of safety.

7 + 17 AMINES + HALOGENATED ORGANICS

Amines are particularly susceptible to alkylation by alkyl halides resulting in formation of secondary and tertiary amines and some heat.

7 + 18 AMINES + ISOCYANATES

Amines act as organic bases in catalyzing the polymerization of isocyanates. The uncontrolled reaction can be violent and produce much heat.

7 + 21 AMINES + ALKALI AND ALKALINE EARTH METALS

These metals can dissolve in amines yielding strongly reducing metal amide solutions and flammable hydrogen gas.

7 + 24 AMINES + TOXIC METALS

Amines act as surfactants in increasing the solubility of toxic metal compounds in water.

7 + 30 AMINES + ORGANIC PEROXIDES

Upon exhaustive oxidation with peroxy acids, amines can yield heat and toxic fumes of nitrogen oxides. Treatment of amines with peroxides and hydroperoxides can result in hydrogen abstraction and initiation of polymerization reactions with heat generated.

7 + 34 AMINES + EPOXIDES

Condensation and ring opening can generate heat. Such a reaction can initiate polymerizations which, if uncontrolled, can generate much heat.

7 + 104 AMINES + OXIDIZING AGENTS

Exhaustive oxidation of amines with these oxidizing agents can result in heat generation and evolution of toxic nitrogen oxide fumes.

7 + 105 AMINES + REDUCING AGENTS

Alkyl metal halides can undergo a Grignard reaction with primary and secondary amines forming the corresponding alkanes. Enough heat may be evolved to cause a fire hazard. See Note 7 + 21 for the combination of amines and alkali and alkaline earth metals. Other reducing agents may also react with amines in a similar manner yielding heat and hydrogen gas.

8 + 9 AZO COMPOUNDS + CARBAMATES

Diazo alkanes could add to the carbonyl group of the carbamate with liberation of N_2 . Aryl diazonium compounds can react with the nitrogen of the carbamate group, also yielding nitrogen. Azo compounds appear to be relatively inert towards reaction with carbamates while hydrazines may form hydrazones with the carbonyl with heat generated. Information regarding these reactions, however, is very scarce.

8 + 11 AZO COMPOUNDS + CYANIDES

Aryl dianion salts can react with metallic cyanides to form the corresponding nitrile, an inorganic salt, and gaseous nitrogen. Diazo alkanes, however, are much less subject to addition of a base like cyanide. Azo alkanes, azo aromatic compounds, and hydrazine and its derivatives do not appear to react with metallic cyanides.

8 + 12 AZO COMPOUNDS + DITHIOCARBAMATES

Little information is available in the literature reviewed. Reaction between these two groups may produce hazardous conditions. It is recommended that mixing be avoided pending laboratory assessment of safety.

8 + 13 AZO COMPOUNDS + ESTERS

Aliphatic diazo compounds, especially diazomethane, are extremely reactive as alkylating agents and may react with esters in some manner to yield heat. The reaction, however, is not substantiated in the literature reviewed. Aromatic diazo and azo compounds do not appear to undergo potentially hazardous reactions with ester.

8 + 17 AZO COMPOUNDS + HALOGENATED ORGANICS

Aliphatic diazo compounds can act as nucleophiles in substituting for the halogen in aliphatic halogenated organics. Nitrogen gas is evolved from such a reaction. Although hydrazines are relatively weak nucleophiles, they can react with primary and some secondary halides with some heat generated.

8 + 18 AZO COMPOUNDS + ISOCYANATES

Isocyanates are susceptible to nucleophilic attack at the carbon and can consequently react with diazo alkanes in this manner. Gaseous nitrogen can result. Hydrazines may also attack the carbon but with less vigor.

8 + 19 AZO COMPOUNDS + KETONES

Although ketones are not as reactive as aldehydes with diazo alkanes, alkylation can occur with water as a catalyst releasing nitrogen gas. Electrophilic substitution of quinones can occur with aromatic dizonium cations yielding nitrogen gas. Although hydrazines form hydrazines with ketones, the reaction requires heating.

8 + 20 AZO COMPOUNDS + MERCAPTANS

Aromatic diazonium salts can form thioethers with mercaptans resulting in evolution of nitrogen gas. Aliphatic diazo compounds may undergo the same reaction.

8 + 21 AZO COMPOUNDS + ALKALI AND ALKALINE EARTH METALS

Molecules which react with these metals are characterized by having centers of high electron density which can induce a localized positive charge in the metal. The subsequent electron transfer is highly exothermic. The compounds in Group 8 all have centers of high electron density in the nitrogen and in the α -carbon in the case of diazo alkanes. The reaction of these compounds with the active metals of Group 21 can thus be very exothermic and may produce hydrogen and/or nitrogen.

8 + 22 AZO COMPOUNDS + METAL POWDERS

Due to the high surface area of these forms of metals and the high flammability of hydrazine and some of its organic derivatives, a combination of these substances in air can result in spontaneous ignition. Toxic nitrogen oxide fumes can be formed. Diazo alkanes polymerize very readily in the presence of copper and other metal powders releasing much heat.

8 + 23 AZO COMPOUNDS + METAL SHEETS, RODS, DROPS, ETC.

Hydrazine and some of its organic derivatives can inflame on contact with surfaces of metals in forms of sheets, rods, drops, etc.

8 + 25 AZO COMPOUNDS + NITRIDES

Little information is available in the literature reviewed. Reaction between these two groups may produce hazardous conditions. It is recommended that mixing be avoided pending laboratory assessment of safety.

8 + 30 AZO COMPOUNDS + ORGANIC PEROXIDES

Hydrazones are explosively oxidized by organic peroxides and hydroperoxides yielding toxic nitrogen oxide fumes. Diazo compounds may form more unstable peroxides with hydroperoxides. Organic peroxides and azo compounds are both relatively sensitive to homolytic fission by heat or light. Any situation where either factor is applied to this mixture might result in extremely fast and exothermic free radical reactions.

8 + 31 AZO COMPOUNDS + PHENOLS and CRESOLS

Aromatic and aliphatic diazo compounds react readily with phenols and cresols forming ethers and nitrogen gas and releasing heat.

8 + 32 AZO COMPOUNDS + ORGANOPHOSPHATES

Little information is available in the literature reviewed. Reaction between these two groups may produce hazardous conditions. It is recommended that mixing be avoided pending laboratory assessment of safety.

8 + 33 AZO COMPOUNDS + SULFIDES

Addition of diazonium salts to solutions of sodium sulfides, bisulfides, and polysulfides results in explosions even at 8°C.

8 + 34 AZO COMPOUNDS + EPOXIDES

Since epoxides are very susceptible to ring cleavage and polymerization by acidic or basic reagents, such reactions are possible with diazonium compounds and hydrazines. In the case of the diazonium compounds, attack of the aryl cation could occur on the oxygen with evolution of nitrogen gas and heat. Hydrazines can act as bases in attacking one of the ring carbons releasing heat. Being strong nucleophiles, diazo alkanes may also cleave the ring at a carbon with generation of heat and nitrogen gas.

8 + 102 AZO COMPOUNDS + EXPLOSIVES

Aliphatic and aromatic diazo compounds and hydrazines are extremely reactive and can undergo numerous interactions with explosives. Any heat or shock generated can detonate the mixture.

8 + 103 AZO COMPOUNDS + POLYMERIZABLE COMPOUNDS

The diazonium ion can act as a Lewis acid in catalyzing various cationic polymerizations. Diazo alkanes are very strong nucleophiles and may add to double bond systems to initiate polymerization. All of the monomers listed in Group 103 may be susceptible to polymerization in combination with diazo alkanes. Hydrazines may be basic enough to catalyze anionic polymerization in combination with diazo alkanes. Hydrazines may be basic enough to catalyze anionic polymerization.

8 + 104 AZO COMPOUNDS + OXIDIZING AGENTS

Exhaustive oxidation of azo, diazo, and hydrazines with these strong oxidizing agents can result in extreme heat generation and evolution of toxic nitrogen oxide fumes. Hydrazines can react with explosive violence.

8 + 105 AZO COMPOUNDS + REDUCING AGENTS

Various reactions producing much heat and evolving nitrogen gas can result from a combination of diazonium compounds and these strong reducing agents. Diazo alkanes are so reactive that they may produce any number of products upon reaction with these compounds. Extreme heat evolution is very probable.

8 + 106 AZO COMPOUNDS + WATER and MISCELLANEOUS AQUEOUS MIXTURES

Both diazo alkanes and diazo aromatic liberate nitrogen gas upon reaction with water.

8 + 107 AZO COMPOUNDS + WATER REACTIVES

See Note 1 + 107.

9 + 10 CARBAMATES + CAUSTICS

Alkaline hydrolysis of carbamates generally yield heat, amines, and carbon dioxide by spontaneous decomposition of N-alkyl or N-aryl carbamic acid.

9 + 21 CARBAMATES + ALKALI and ALKALINE EARTH METALS

These metals are very susceptible to reaction with compounds containing centers of high electron density. A redox reaction can occur by an induced positive charge on the metal. The electron transfer is very energetic and may result in fire from formation of hydrogen gas.

9 + 22 CARBAMATES + METAL POWDERS, VAPORS, OR SPONGES

Little information is available in the literature reviewed. Reaction between these two groups may produce hazardous conditions. It is recommended that mixing be avoided pending laboratory assessment of safety.

9 + 25 CARBAMATES + NITRIDES

Since nitrides are extremely strong bases, they can easily extract the N-protons from carbamates forming flammable ammonia gas and initiating decomposition to various nitrogen containing products.

9 + 30 CARBAMATES + ORGANIC PEROXIDES

Selective oxidation may occur at double bonded nitrogen sites with some heat generated. Exhaustive oxidation, however, can liberate toxic nitrogen oxide fumes with much heat. Initial reaction may cause decomposition of the more unstable peroxides.

9 + 104 CARBAMATES + OXIDIZING AGENTS

Exhaustive oxidation of carbamates can result in extreme heat generation and formation of toxic nitrogen oxide fumes.

10 + 13 CAUSTICS + ESTERS

Esters are easily hydrolyzed by caustics to a salt and alcohol with heat generation.

10 + 17 CAUSTICS + HALOGENATED ORGANICS

Aliphatic halides can undergo substitution or dehydrohalogenation upon treatment with strong caustics. Both processes involve some heat generation while the second evolves flammable olefins and acetylenes, especially with the lower molecular weight compounds. Halogenated aromatics, however, are relatively stable to strong caustics.

10 + 18 CAUSTICS + ISOCYANATES

Caustics catalyze the polymerization of diisocyanates yielding much heat. The mono isocyanates decompose to amines and carbon dioxide upon contact with caustics

10 + 19 CAUSTICS + KETONES

Caustics can catalyze the self-condensation of ketones yielding heat.

10 + 21 CAUSTICS + ALKALI and ALKALINE EARTH METALS

Heat and flammable hydrogen gas can be generated due to the aqueous nature of most caustics.

10 + 22 CAUSTICS + METAL POWERS, VAPORS, AND SPONGES

Heat and flammable hydrogen gas may be generated with some metals such as aluminum, magnesium, zinc, and beryllium. Explosions may also occur due to the high surface area of these forms.

10 + 23 CAUSTICS + METAL SHEETS, RODS, DROPS, ETC.

Heat and flammable hydrogen gas are liberated upon dissolution of these metals in caustics. The reaction, however, is much slower than those in Note 10 + 22 above.

10 + 24 CAUSTICS + TOXIC METALS

Many toxic metals and metal compounds are soluble in caustics, i.e., PbCO_3 , PbCrO_4 , $\text{Cd}(\text{CN})_2$, As_2O_3 , AsF_5 , AgCrO_4 , ZnCO_3 , $\text{Zn}(\text{CN})_2$.

10 + 25 CAUSTICS + NITRIDES

Little information is available in the literature reviewed. Reaction between these two groups may produce hazardous conditions. It is recommended that mixing be avoided pending laboratory assessment of safety.

10 + 26 CAUSTICS + NITRILES

Little information is available in the literature reviewed. Reaction between two groups may produce hazardous conditions. It is recommended that mixing be avoided pending laboratory assessment of safety.

10 + 27 CAUSTICS + NITRO COMPOUNDS

Nitro alkalines and caustics form salts in the presence of water. The dry salts are explosive.

10 + 32 CAUSTICS + ORGANOPHOSPHATES

Alkaline hydrolysis of phosphorothioates can generate enough heat to cause explosive rearrangement from the thiono to the thiole form. Hydrolysis of other organophosphates can generate heat.

10 + 34 CAUSTICS + EPOXIDES

Base catalyzed cleavage can result in polymerization with much heat.

10 + 102 CAUSTICS + EXPLOSIVES

Alkaline hydrolysis or other reactions can generate enough heat to detonate these compounds

10 + 103 CAUSTICS + POLYMERIZABLE COMPOUNDS

These compounds can undergo anionic polymerization with caustics as initiators yielding much heat.

10 + 107 CAUSTICS + WATER REACTIVES

See Note 1 + 107.

11 + 17 CYANIDES + HALOGENATED ORGANICS

Nucleophilic substitution can result in some heat with formation of nitriles.

11 + 18 CYANIDES + ISOCYANATES

Cyanide solution can cause decomposition of isocyanates yielding heat and carbon dioxide. This decomposition is due to the water as well as the basic character of the cyanide anion.

11 + 19 CYANIDES + KETONES

Some heat may be evolved from the formation of cyanohydrins with alkaline cyanide solution.

11 + 21 CYANIDES + ALKALI and ALKALINE EARTH METALS

Hydrogen cyanide can react with these metals to yield heat and flammable hydrogen gas.

11 + 25 CYANIDES + NITRIDE

Hydrogen cyanide and nitrides may react to form flammable ammonia gas.

11 + 30 CYANIDES + ORGANIC PEROXIDES

Metal cyanides and hydrogen cyanide are readily oxidized and may react explosively with these organic peroxides, and hydroperoxides. Toxic nitrogen oxide fumes can result.

11 + 34 CYANIDES + EPOXIDES

Due to its basicity in aqueous solution, ring cleavage can occur with heat generation and possible polymerization of the epoxides.

11 + 104 CYANIDES + OXIDIZING AGENTS

Metal cyanides and hydrogen cyanides are readily oxidized. Toxic nitrogen oxide fumes may be produced.

11 + 107 CYANIDES + WATER REACTIVES

See Note 1 + 107.

12 + 18 DITHIOCARBAMATES + ISOCYANATES

A reaction involving the disulfide group and the isocyanate group may be possible. However, there is little evidence in the literature reviewed to substantiate this reaction.

12 + 21 DITHIOCARBAMATES + ALKALI and ALKALINE EARTH METALS

Due to the high electron density about the disulfide group, a reaction may occur between these two groups of compounds yielding heat and toxic fumes. However, substantiation is scarce in the literature reviewed.

12 + 30 DITHIOCARBAMATES + PEROXIDES

Oxidation can result in heat generation and formation of toxic oxides of nitrogen and sulfur.

12 + 34 DITHIOCARBAMATES + POLMERIZABLE COMPOUNDS

Little information is available in the literature reviewed. Reaction between these two groups may produce hazardous conditions. It is recommended that mixing be avoided pending laboratory assessment of safety.

12 + 104 DITHCARBAMATES + STRONG REDUCING AGENTS

Reductive cleavage of the carbon sulfur bonds may occur yielding extremely toxic hydrogen sulfide fumes. However, the reaction cannot be substantiated with the reference used.'

12 + 106 DITHIOCARBAMATES + WATER

Extremely flammable and toxic carbon disulfide may be generated.

12 + 1-7 DITHIOCARBAMATES + WATER REACTIVES

See Note 1 + 107.

13 + 21 ESTERS + ALKALI and ALKALINE EARTH METALS

The α -hydrogens can be easily scavenged by these metals yielding hydrogen gas and heat.

13 + 25 ESTERS + NITRIDES

Nitrides can attack the α -hydrogens forming flammable ammonia gas and generating heat. The transition metal nitrides, however, are chemically very inert.

13 + 102 ESTERS + EXPLOSIVES

Esters may form highly oxygenated compounds with some of these explosives (metal nitrates) to form even more unstable compounds. They may react exothermically with others to cause explosive decomposition and yield extremely toxic fumes.

13 + 104 ESTERS + STRONG OXIDIZERS

Vigorous oxidation of the hydrocarbon moiety can occur yielding much heat.

13 + 105 ESTERS + STRONG REDUCING AGENTS

See 13 + 21.

14 + 104 ETHERS + STRONG OXIDIZERS

These compounds can react violently upon contact yielding much heat and causing ignition and explosions.

14 + 107 ETHERS + WATER REACTIVES

See 1 + 107.

15 + 107 FLUORIDES + WATER REACTIVES

See 1 + 107.

16 + 104 AROMATIC HYDROCARBONS + STRONG OXIDIZING AGENTS

Violent reactions can occur between these types of compounds resulting in heat and fire.

17 + 20 HALOGENATED ORGANICS + MERCAPTANS

Alkyl halides and mercaptans can react to form thipethers with some heat generation.

17 + 21 HALOGENATED ORGANICS + ALKALI AND ALKALINE EARTH METALS

Halogenated organics, especially alkyl halides form explosive mixtures with alkali and alkaline earth metals.

17 + 22 HALOGENATED ORGANICS + METAL POWDERS, VAPORS, OR SPONGES

Metals in these forms are highly reactive and can result in violent reactions on contact with halogenated hydrocarbons. Explosions can occur with aluminum, magnesium, zinc, zirconium and their alloys in combination with alkyl halides.

17 + 23 HALOGENATED ORGANICS + METAL SHEETS, RODS, DROPS, ETC.

Aluminum and magnesium in bulk forms are especially reactive with halogenated hydrocarbons releasing much heat. The formation of the metal halide catalyzes further decomposition of the metals. Fire and explosions may occur.

17 + 25 HALOGENATED ORGANICS + NITRIDES

Substitution can occur yielding heat. However, generation of ammonia gas will be more likely.

17 + 30 HALOGENATED ORGANICS + ORGANIC PEROXIDES

Peroxides and hydroperoxides generate radicals which can initiate chain decomposition of alkyl halides. Such a reaction can be explosively violent with the more reactive peroxides.

17 + 104 HALOGENATED ORGANICS + OXIDIZING AGENTS

Halogenated organics can be easily oxidized by these compounds yielding heat and toxic and corrosive hydrogen halide fumes.

17 + 105 HALOGENATED ORGANICS + REDUCING AGENTS

Boranes are known to form explosive mixtures with alkyl halides. See also Note 17 + 21.

17 + 107 HALOGENATED ORGANICS + WATER REACTIVES

See Note 1 + 107.

18 + 20 ISOCYANATES + MERCAPTANS

Mercaptans may add to isocyanates yielding some heat. Diisocyanates and dimercaptans may polymerize with much heat generated.

18 + 21 ISOCYANATES + ALKALI AND ALKALINE EARTH METALS

These metals can abstract the α -hydrogens from aliphatic isocyanates to yield hydrogen gas. The isocyanate group may also induce sufficient charge separation in the metals to cause exothermic transfer of electrons.

18 + 22 ISOCYANATES + METAL POWDERS, VAPORS and SPONGES

The most highly reactive of these metals such as aluminum, magnesium, zinc, zirconium, and their alloys can abstract the labile α -hydrogens from the alkyl isocyanates to yield hydrogen gas. Decomposition of the isocyanate group is also possible.

18 + 25 ISOCYANATES + NITRIDES

Little information is available in the literature reviewed. Reaction of these two groups may produce hazardous conditions. It is recommended that mixing be avoided pending laboratory assessment of safety.

18 + 30 ISOCYANATES + ORGANIC PEROXIDES

Isocyanates may form peroxy carbamates with hydroperoxides which in turn can decompose yielding carbon dioxide and free radicals upon slight heating. Peroxides may form carbamates with slight heating. Peroxides may form carbamates with isocyanates yielding some heat. In both cases, the radicals have to be generated pyrolytically or by metal catalysts for these reactions to occur. Contaminants and heat of solution may be sufficient to generate radicals in wastes.

18 + 31 ISOCYANATES + PHENOLS AND CRESOLS

Isocyanates and phenols can combine to form carbamic esters yielding some heat. With multifunctional isocyanates and phenols, polymerization can result yielding much heat. This reaction is especially catalyzed by metal compounds.

18 + 33 ISOCYANATES + SULFIDES

If sulfide salts are soluble in isocyanates. Attack may occur at the carbonyl forming a thiocarbamate and yielding heat. If the sulfides are in aqueous solution, the isocyanates will react preferentially with the water and decompose yielding carbon dioxide.

18 + 104 ISOCYANATES + OXIDIZING AGENTS

Exhaustive oxidation of isocyanates can yield heat, fire, and toxic fumes of nitrogen oxides.

18 + 105 ISOCYANATES + STRONG REDUCING AGENTS

See Notes 18 + 21, and 18 + 33. Other reducing agents may react in a similar manner.

18 + 106 ISOCYANATES + WATER

Isocyanates form carbamic acids with water which decompose immediately to carbon dioxides yielding some heat.

18 + 107 ISOCYANATES + WATER REACTIVES

See Note 1 + 107.

19 + 20 KETONES + MERCAPTANS

Ketones and mercaptans can form gem-hydroxy thioethers yielding some heat.

19 + 21 KETONES + ALKALI and ALKALINE EARTH METALS

These metals can readily abstract the labile α -hydrogens forming flammable hydrogen gas and heat.

19 + 25 KETONES + NITRIDES

Nitrides which are somewhat soluble in ketones, may generate flammable ammonia gas upon reaction with the labile α -hydrogens of the ketones. Various other reactions can also generate heat.

19 + 30 KETONES + PEROXIDES and HYDROPEROXIDES

Peroxides and ketones may form diperoxides which can decompose with slight increase in temperature or in the presence of water. Hydroperoxides are also formed in this interaction. Hydroperoxides form hydroxyperoxides and diperoxides with ketones. Many of the reaction products as well as the peroxy reactants are extremely sensitive to heat and shock.

19 + 104 KETONES + STRONG OXIDIZING AGENTS

Exhaustive oxidation can generate much heat and ignite the mixture.

19 + 105 KETONES + STRONG REDUCING AGENTS

See Note 19 + 21. Other reducing agents may also react with ketones in the same manner.

19 + 107 KETONES + WATER REACTIVES

See Note 1 + 107.

20 + 21 MERCAPTANS + ALKALI AND ALKALINE EARTH METALS

These active metals can easily abstract the sulfhydryl hydrogen to form flammable hydrogen gas and the mercaptide with heat.

20 + 22 MERCAPTANS + METAL POWDERS, VAPORS OR SPONGES

Metals in these forms can react with mercaptans to form flammable hydrogen gas, and mercaptides with heat. Aluminum, beryllium, magnesium, zinc, and zirconium are especially reactive in this manner. The reaction can be explosive.

20 + 25 MERCAPTANS + NITRIDES

Nitrides which are soluble in mercaptans, may form ammonia gas with heat generation.

20 + 30 MERCAPTANS + ORGANIC PEROXIDES

The sulfhydryl hydrogen can be easily abstracted by radicals produced from the decomposition of peroxides and hydroperoxides. The resulting chain reaction can be highly exothermic. The lower molecular weight peroxy compounds are extremely unstable and explosions can occur.

20 + 34 MERCAPTANS + EPOXIDES

Mercaptans may cleave epoxides with heat generation. Difunctional mercaptans may polymerize with epoxides in this manner yielding much heat.

20 + 104 MERCAPTANS + OXIDIZING AGENTS

Exhaustive oxidation can result in much heat generation and formation of toxic sulfur oxide fumes.

20 + 105 MERCAPTANS + REDUCING AGENTS

See Note 20 + 21. Other strong reducing agents may react in the same manner generating hydrogen.

20 + 107 MERCAPTANS + WATER REACTIVES

See Note 1 + 107.

21 + 25 ALKALI and ALKALINE EARTH METALS + NITRIDES

Many nitrides are explosively unstable and may react violently with these extremely reactive metals.

21 + 26 ALKALI and ALKALINE EARTH METALS + NITRILES

These metals can abstract the labile α -hydrogen to yield flammable hydrogen gas and heat. Polymerization may be initiated in this manner yielding much heat.

21 + 27 ALKALI AND ALKALINE EARTH METALS + NITRO COMPOUNDS

Aliphatic nitro compounds have labile α -hydrogens which can easily be extracted by these active metals. The resulting alkali or alkaline earth metal salts are highly unstable to heat and shock and may be detonated by the heat of reaction. The redox reaction between aromatic nitro compounds and these metals can be highly exothermic.

21 + 30 ALKALI and ALKALINE EARTH METALS + ORGANIC PEROXIDES

The redox reaction can be explosively exothermic.

21 + 31 ALKALI and ALKALINE EARTH METALS + PHENOLS and CRESOLS

Flammable hydrogen gas can be liberated by abstraction of the phenolic hydrogen. The heat of reaction may ignite the gas.

21 + 32 ALKALI and ALKALINE EARTH METALS + ORGANOPHOSPHATES

The high electron density of the organophosphate group can initiate a reaction with these active metals resulting in exothermic transfer of electrons from the metals. In the case of phosphorothioates and phosphorodithioates, this heat of reaction may be sufficient to cause explosive rearrangement from the thiono to the thiole form. Parathion and methy parathion are especially sensitive to heat.

21 + 101 ALKALI and ALKALINE EARTH METALS + COMBUSTIBLE MATERIALS

Many of these miscellaneous materials may contain various substances such as water which are extremely reactive with the active metals. Heat and various hazardous gases may be evolved. Enough heat may be evolved to ignite the materials if air or some other source of oxygen is present.

21 + 102 ALKALI and ALKALINE EARTH METALS + EXPLOSIVES

Many explosives are highly oxygenated and will react on contact with these active metals with explosive violence. These active metals can also react exothermically with the other unstable compounds to cause detonation.

21 + 103 ALKALI and ALKALINE EARTH METALS + POLYMERS

Radicals from these metals readily attack unsaturated carbons and can initiate polymerization of many of the compounds in Group 103. Much heat can be evolved.

21 + 104 ALKALI and ALKALINE EARTH METALS + OXIDIZING AGENTS

Alkali and alkaline earth metals are extremely effective reducing agents. They will react violently with oxidizing agents evolving much heat, and resulting in fires and explosions.

21 + 106 ALKALI and ALKALINE EARTH METALS + WATER

These metals react violently with water evolving flammable hydrogen gas and resulting in formation of strong caustics. Enough heat can be generated to cause ignition.

21 + 107 ALKALI and ALKALINE EARTH METALS + WATER REACTIVES

See Note 1 + 107.

22 + 28 METAL POWDERS + UNSATURATED ALIPHATICS

Finely divided metals, especially copper and silver, can form acetylides with acetylenes. These acetylides are very sensitive to shock and heat and can regenerate flammable acetylene upon contact with water.

22 + 30 METAL POWDERS + ORGANIC PEROXIDES

Diacyl peroxides and ozonides are particularly reactive with metals in these forms. They can decompose violently yielding heat and various gases. The peroxy acids are especially strong oxidizing agents and can produce much heat upon reaction with these metals. Other peroxy compounds may decompose violently upon contact yielding oxygen.

22 + 34 METAL POWDERS + EXPLOSIVES

The metal oxide coating of these finely divided particles can catalyze ring opening and polymerization with much heat evolved.

22 + 102 METAL POWDERS + EXPLOSIVES

Many of these unstable compounds are extremely vigorous oxidizing agents and can react explosively with these metals.

22 + 103 METAL POWDERS + POLYMERIZABLE COMPOUNDS

The oxide coatings of these metals can catalyze the polymerization of the monomers in Group 102. See also Note 22 + 30. Much heat can be evolved.

22 + 104 METAL POWDERS + OXIDIZING AGENTS

These metals are readily oxidized by the substances in Group 104 yielding much heat. Fires and explosions can also result.

22 + 106 METAL POWDERS + WATER

Some of these metals evolve flammable hydrogen gas with some treatment on contact with water. In enclosed areas, explosions can occur.

22 + 107 METAL POWDERS + WATER REACTIVES

See Note 1 + 107.

23 + 103 METAL SHEETS, ETC. + POLYMERIZABLE COMPOUNDS

Polymerization may be catalyzed by these metal surfaces yielding much heat. Although not as reactive as Group 22, chunks or containers made of these metals may be reactive enough to initiate polymerization.

23 + 104 METAL SHEETS, ETC. + OXIDIZING AGENTS

These metals can react vigorously with oxidizing agents generating heat and possibly resulting in fires.

23 + 107 METAL SHEETS, ETC. + WATER REACTIVES

See Note 1 + 107.

24 + 26 TOXIC METALS + NITRILES

Acetonitrile and ethylene cyanohydrin are used as nonaqueous solvents for many inorganic salts.

24 + 30 TOXIC METALS + ORGANIC PEROXIDES

Many metal salts can catalyze the decomposition of organic peroxides and hydroperoxides yielding heat and various gases such as oxygen and carbon dioxide. Diacyl peroxides are especially susceptible to explosive decomposition in the presence of nearby metals and metal salts. Hydroperoxides are more stable than diacyl peroxides but do undergo similar reactions with these metals.

24 + 34 TOXIC METALS + EPOXIDES

Polymerization of epoxides, especially ethylene oxide and propylene oxide, can be initiated by Lewis acids such as SnCl_5 , ZnCl_2 , SbCl_3 , ZrCl_4 , CrCl_3 , CoCl_2 and HgCl_2 . Organometallic zinc compounds can also initiate much heat.

24 + 102 TOXIC METALS + EXPLOSIVES

These various metals salts may react exothermically with explosives to cause detonation. Much of this reactivity is associated with the anion rather than the metal cation.

24 + 103 TOXIC METALS + POLYMERS

See Note 24 + 34. Vinyl monomers and dienes are susceptible to cationic polymerization by Lewis acid catalysts such as SnCl_4 , SnBr_4 , SbCl_2 , and ZnCl_4 . Although a co-catalyst such as H_2O , or HCl is required, only trace amounts need be present.

24 + 106 TOXIC METALS + WATER

Some of these compounds are very soluble in water. See the specific compounds for solubilities.

24 + 107 TOXIC METALS + WATER REACTIVES

See Note 1 + 107.

25 + 26 NITRIDES + NITRILES

If the ionic nitrides are soluble in aliphathic nitriles, they can extract the α -hydrogens from the nitriles to form flammable ammonia gas. Some heat can be evolved.

25 + 27 NITRIDES + NITRO COMPOUNDS

If soluble, nitrides can extract a hydrogen from aliphatic nitro compounds to yield flammable ammonia gas and heat. Many polynitrated aromatics and ionic nitrides are unstable to heat and shock. However, the nitrides are much more unstable and may initiate the explosive decomposition of such nitro compounds.

25 + 30 NITRIDES + ORGANIC PEROXIDES

On combination with hydroperoxides, nitrides can abstract the peroxy hydrogen and initiate the decomposition with generation of ammonia. The anion formed can further decompose upon reaction with more hydroperoxides to yield oxygen gas. This decomposition can proceed with fire and explosions. Some hydroperoxides may form relatively stable salts, however, these salts can decompose violently upon heating. Ammonia gas

can also be formed with peroxides due to abstraction of hydrogen on the peroxy carbon. The peroxide then undergoes homolytic fission with some heat evolved. Nitrides and the lower molecular weight peroxides are both extremely unstable.

25 + 31 NITRIDES + PHENOLS and CRESOLS

Flammable ammonia gas can be formed from the acid-base reaction of the aromatic hydroxy group and ionic nitrides also yielding heat.

25 + 34 NITRIDES + EPOXIDES

Base catalyzed ring opening initiating polymerization of epoxides can occur with nitrides. Much heat can be evolved.

25 + 101 NITRIDES + COMBUSTIBLE MATERIALS

Many of these miscellaneous mixtures may also contain water which will form ammonia gas with nitrides. Moreover, since nitrides are also pyrophoric, any air present can initiate combustion.

25 + 102 NITRIDES + EXPLOSIVES

Ionic nitrides are pyrophoric and extremely sensitive to shock and heat. They can act as initiating explosives for many of the high explosives listed in Group 102.

25 + 103 NITRIDES + POLYMERIZABLE COMPOUNDS

Ionic nitrides may initiate anionic polymerization of vinyl monomers and dienes yielding much heat. See also Note 25 + 34.

25 + 104 NITRIDES + OXIDIZING AGENTS

Ionic nitrides are pyrophoric and can inflame or explode on contact with strong oxidizing agents.

25 + 106 NITRIDES + WATER

Ionic nitrides are easily hydrolyzed to caustic and flammable ammonia gas.

25 + 107 NITRIDES + WATER REACTIVES

See Note 1 + 107.

26 + 30 NITRILES + ORGANIC PEROXIDES

Amyl nitriles such as phenyl acetonitrile are converted to peroxyesters and hydrogen cyanide gas upon treatment with hydroperoxides. The polymerization of acrylonitriles can be initiated by organic peroxides. Dibenzoyl peroxide is widely used for this purpose. Upon exhaustive oxidation with peroxy acids, much heat and toxic nitrogen oxide fumes can be evolved.

26 + 104 NITRILES + OXIDIZING AGENTS

Exhaustive oxidation can result in evolution of heat and toxic fumes of nitrogen oxides, and ignition.

26 + 105 NITRILES + REDUCING AGENTS

Nitriles are readily reduced by metal hydrides, especially LiAlH_4 yielding much heat. Hydrogen gas can also be evolved from the abstraction of the labile α -hydrogens.

26 + 107 NITRILES + WATER REACTIVES

See Note 1 + 107.

27 + 104 NITRO COMPOUNDS + OXIDIZING AGENTS

Many nitro compounds can decompose explosively. Strong oxidizing agents can catalyze this decomposition by oxidizing the hydrocarbon moiety. Shock sensitive salts can also form, which when dry, can decompose explosively.

27 + 105 NITRO COMPOUNDS + REDUCING AGENTS

The labile α -hydrogens of nitro aliphatics can be extracted and evolved as flammable hydrogen gas with some heat.

27 + 107 NITRO COMPOUNDS + WATER REACTIVES

See Note 1 + 107.

28 + 30 UNSATURATED ALIPHATICS + ORGANIC PEROXIDES

Olefinic hydrocarbons are susceptible to oxidation by peroxy acids to epoxides and glycol ester. The reaction may evolve some heat. Alkyl and aryl peroxides attack olefins by a free radical mechanism sometimes resulting in highly exothermic polymerizations. Aryl peroxides also participate in a free

radical reaction with olefins, but attack can occur at the allylic methylene or the double bond. In either case, polymeric hydrocarbons result. Acetylenic hydrocarbons undergo similar reactions, but rates are much slower.

28 + 104 UNSATURATED ALIPHATICS + STRONG OXIDIZER

Exhaustive oxidation can result in ignition of the hydrocarbons.

28 + 107 UNSATURATED HYDROCARBONS + WATER REACTIVE

See Note 1 + 107.

30 + 31 ORGANIC PEROXIDES + PHENOLS AND CRESOLS

Some heat may be evolved from the oxidation of phenols and cresols to quinones and from free radical substitution on the aromatic ring. These oxidations are greatly enhanced by the presence of metal ions.

30 + 32 ORGANIC PEROXIDES + ORGANOPHOSPHATES

Little information is available in the literature reviewed. Reaction between these two groups may produce hazardous conditions. It is recommended that mixing be avoided pending laboratory assessment of safety.

30 + 33 ORGANIC PEROXIDES + SULFIDES

Inorganic sulfides may be oxidized to toxic sulfur dioxide by these organic peroxides. The metal may also catalyze the decomposition of the more unstable peroxides and hydroperoxides yielding gas and heat.

30 + 34 ORGANIC PEROXIDES + EXPOXIDES

Hydroperoxides are known to cleave epoxide rings by nucleophilic attack of the peroxy anion. Some heat may be evolved, but there is no evidence to polymerization. Polymerization can occur with a combination of peroxides and allylic epoxides by a free radical mechanism.

30 + 101 ORGANIC PEROXIDES + COMBUSTIBLE MATERIALS

Many of these materials are susceptible to oxidation by organic peroxides and can evolve toxic gases. Heat and fire can also result.

30 + 102 ORGANIC PEROXIDES + EXPLOSIVES

If these explosives are not detonated upon contact with organic peroxides, the mixture can be extremely unstable and sensitive to any shock or slight heating.

30 + 103 ORGANIC PEROXIDES + POLYMERIZABLE COMPOUNDS

Olefinic bonds are particularly susceptible to attack by free radicals generated from organic peroxides and hydroperoxides. The polymerization of vinyl, acrylic, and olefinic monomers listed in Group 103 can be initiated by these radicals with heat generated.

30 + 104 ORGANIC PEROXIDES + OXIDIZING AGENTS

Strong oxidizing agents can cause violent decomposition of organic peroxides and hydroperoxides yielding heat and oxygen or carbon dioxide. The decomposition can be catalyzed by the metallic character as well as the oxidizing properties of these compounds.

30 + 105 ORGANIC PEROXIDES + REDUCING AGENTS

These compounds can react explosively.

30 + 107 ORGANIC PEROXIDES + WATER REACTIVES

See Note 1 + 107.

31 + 34 PHENOLS and CRESOLS + EPOXIDES

Epoxides may be cleaved by phenols and cresols in the presence of traces of acid or base. Some heat can be evolved. Polymerization is possible.

31 + 103 PHENOLS and CRESOLS + POLYMERIZABLE COMPOUNDS

See Note 18 + 31 and also Note 31 + 34.

31 + 104 PHENOLS and CRESOLS + OXIDIZING AGENTS

Mild oxidation can yield ketones, carboxylic acids, and carbon dioxide with some heat. Exhaustive oxidation can yield much more heat and possibly fire.

31 + 105 PHENOLS AND CRESOLS + REDUCING AGENTS

See Note 21 + 31. The phenolic hydrogen is readily extracted by reducing agents, especially hydrides to yield flammable hydrogen gas and heat.

31 + 107 PHENOLS and CRESOLS + WATER REACTIVES

See Note 1 + 107.

32 + 34 ORGANOPHOSPHATES + EPOXIDES

Little information is available in the literature reviewed. Reaction between these two groups may produce hazardous conditions. It is recommended that mixing be avoided pending laboratory assessment of safety.

32 + 104 ORGANOPHOSPHATES + OXIDIZING AGENTS

Exhaustive oxidation of these organophosphorous compounds can yield toxic and corrosive fumes of oxides of phosphorous, sulfur, and nitrogen with heat.

32 + 105 ORGANOPHOSPHATES + REDUCING AGENTS

The phosphothioates and phosphodithioates can evolve toxic and flammable hydrogen sulfide upon reduction. See Note 21 + 32.

32 + 107 ORGANOPHOSPHATES + WATER REACTIVES

See Note 1 + 107.

33 + 34 SULFIDES + EPOXIDES

Soluble sulfides can cleave epoxides by a nucleophilic attack, possibly initiating polymerization and yielding much heat.

33 + 102 SULFIDES + EXPLOSIVES

Sulfides are strong reducing agents and can react explosively with the highly oxygenated compounds in Group 102.

33 + 103 SULFIDES + POLYMERIZABLE COMPOUNDS

Soluble sulfides may initiate anionic polymerization with some heat generated. See Note 33 + 34.

33 + 104 SULFIDES + OXIDIZING AGENTS

Sulfides are strong reducing agents and can react violently with oxidizing agents yielding toxic fumes of sulfur dioxide and heat.

33 + 106 SULFIDES + WATER

Toxic and flammable hydrogen sulfide gas can be generated.

33 + 107 SULFIDES + WATER

See Note 1 + 107.

34 + 102 EPOXIDES + EXPLOSIVES

The lower molecular weight epoxides are extremely flammable and can react explosively with the highly oxygenated members of Group 102.

34 + 104 EPOXIDES + OXIDIZING AGENTS

Exhaustive oxidation can result in heat and ignition of the flammable epoxides.

34 + 105 EPOXIDES + REDUCING AGENTS

Reductive cleavage of epoxides occurs readily with metal hydrides and other agents yielding much heat. See Note 21 + 34.

34 + 107 EPOXIDES + WATER REACTIVES

See Note 1 + 107.

101 + 102 COMBUSTIBLES + OXIDIZING AGENTS

Many of these explosives are very strong oxidizing agents and can react violently with these combustibles. If they do not react immediately, these mixtures may be unstable.

101 + 104 COMBUSTIBLES + OXIDIZING AGENTS

Heat, fire, and possibly explosions can result from this combination. Toxic gases can result if the combustible material contains compounds of nitrogen, sulfur, or phosphorous.

101 + 105 COMBUSTIBLES + REDUCING AGENTS

These miscellaneous combustibles may contact water which can react with many reducing agents to form flammable hydrogen gas. The reducing agents are also pyrophoric and can ignite the combustibles in the presence of air.

101 + 107 COMBUSTIBLES + WATER REACTIVES

See Note 1 + 107.

102 + 103 EXPLOSIVES + POLYMERIZABLE COMPOUNDS

Many explosives are strong oxidizing agents and can react explosively with these organic compounds. Many of these monomers such as ethylene oxide, vinyl chloride, butadiene, and others are extremely flammable.

102 + 104 EXPLOSIVES + OXIDIZING AGENTS

Extremely sensitive mixtures can result from this combination. The presence of another oxidizing agent can catalyze the decomposition of many of the highly oxygenated explosives. Others such as the nitrides, azides, and carbides are easily oxidized and can react explosively.

102 + 105 EXPLOSIVES + REDUCING AGENTS

Since many explosives are strong oxidizing agents, their reaction with reducing agents can be extremely violent.

102 + 107 EXPLOSIVES + WATER REACTIVES

See Note 1 + 107.

103 + 104 POLYMERIZABLE COMPOUNDS + OXIDIZING AGENTS

These monomers are readily combustible organic compounds and can react violently with strong oxidizing agents to yield heat and fire. The halogenated monomers or those containing nitrogen can evolve toxic fumes.

103 + 105 POLYMERIZABLE COMPOUNDS + REDUCING AGENTS

Many reducing agents are also widely used as initiators for anionic polymerization. The reaction can yield much heat. Competing reactions may also produce flammable hydrogen gas.

103 + 107 POLYMERIZABLE COMPOUNDS + WATER REACTIVES

See Note 1 + 107.

104 + 107 OXIDIZING AGENTS + REDUCING AGENTS

See Note 1 + 107.

105 + 106 REDUCING AGENTS + WATER

These strong reducing agents can liberate extremely flammable and/or toxic gases such as phosphine, hydrogen sulfide, ammonia, hydrogen, and acetylene upon contact with water. The heat generated can ignite these gases.

105 + 107 REDUCING AGENTS + WATER REACTIVES

See Note 1 + 107.

106 + 107 WATER + WATER REACTIVES

This combination can result in violent reactions evolving flammable and/or toxic gases with heat. Often fires and explosions result.

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ATTACHMENT C
GENERAL INSPECTION SCHEDULE
for
HERITAGE ENVIRONMENTAL SERVICES
LEMONT FACILITY

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Table C-I: General Inspection Schedule
Security Devices

<u>ITEM</u>	<u>INSPECTION ELEMENT/TYPE OF PROBLEM</u>	<u>INSPECTION FREQUENCY</u>
Fence	.Inspect entire perimeter for breaches or damage	Daily
Gates	.Check for proper gate lock function	Daily
Warning Signs	.Check for presence of warning signs	Daily
Lighting System	.Check lights for operability	Weekly
Buildings	.Check for unauthorized entires, damage, and missing equipment	Daily

Table C-II: General Inspection Schedule,
Safety & Emergency Equipment

<u>EQUIPMENT</u>	<u>INSPECTION ELEMENT/TYPE OF PROBLEM</u>	<u>INSPECTION FREQUENCY</u>
Protective Gear (e.g., Helmets, Face Shields, Goggles, Boots, Gloves, Acid Resistant Clothing, Disposable suits, Disposable Bags, Fire Fighting Asbestos Suits, Orange Vests)	. Check accessibility.	Weekly
	. Check for adequate supply.	Monthly
	. Check for deterioration, damage	Monthly
Breathing Apparatus (e.g., Dust Masks, Half-Face Respirators, Breathing Masks and Hoses, 5-Minute Emergency Escape Units, 30-Minute Breathing Apparatus, Oxygen, Bottles, Compressed Air Cylinders)	. Check for accessibility.	Weekly
	. Check for adequate supply, full charge on canisters, and all air tanks.	Weekly
	. Check for deterioration and damage.	Monthly
	. Check for function.	Monthly
First Aid Kits	. Check accessibility.	Weekly
	. Check for adequate supply.	Weekly
Emergency Showers	. Check that units activate and shut off properly.	Weekly
	. Check accessibility.	Weekly
Water Lines	. Check for adequate pressure.	Weekly
Alarm Systems (Sirens and Flashing Light)	. Check accessibility.	Daily
	. Activate audible alarm.	Daily
	. Check flashing light operability.	Daily

Table C-II: General Inspection Schedule,
Safety & Emergency Equipment (continued)

<u>EQUIPMENT</u>	<u>INSPECTION ELEMENT/TYPE OF PROBLEM</u>	<u>INSPECTION FREQUENCY</u>
Internal (Phone or (Radio)/External (Phone) Communication- cations Systems	. Check accessibility.	Daily
	. Check for operation.	Daily
Fire Extinguishers	. Check pressure gauge for full charge indication.	Weekly
	. Check inspection tag to insure annual maintenance by outside fire service is up-to-date.	Weekly
	. Check seal to ensure no one has used extinguisher.	Weekly
	. Check for deterioration.	Monthly
	. Check for adequate supply.	Monthly
	. Check accessibility.	Weekly
Absorbent Supply	. Check for adequate supply.	Weekly
Recovery Drums	. Check for adequate supply.	Weekly
Other Emergency and Decontamination Equipment	. Check accessibility.	Weekly
	. Check for adequate supply.	Monthly
	. Check for deterioration/damage.	Monthly
Automatic Sprinkler Systems	. Check for operation	Semi-annually
	. Check for adequate pressure.	Semi-annually

Table C-III: Container Storage Inspection Schedule

<u>ITEM</u>	<u>INSPECTION ELEMENT/TYPE OF PROBLEM</u>	<u>INSPECTION FREQUENCY</u>
Container Loading/ Unloading Area	. Check for damaged containers	Daily
	. Check for evidence of spilled material on slab and ramps used	Daily
	. Check for removal of used absorbent and cleaning materials	Daily
	. Check for prompt container removal from receiving area	Daily
Container Storage	. Check for evidence of spilled material on slab, ramps, drains, sumps	Daily
Monitoring Equipment In Proper Working Order	. Check for removal of absorbent materials and cleanup rags	Daily
	. Check for cracks, spalling and gaps in base, concrete slab, sump and drains	Weekly
	. Check for erosion/corrosion, uneven settlement, etc.	Weekly
	. Check for corrosion of grating over drains and sumps	Weekly
	. Check for condition and availability of overpack containers	Weekly
	. Check for fluid in witness wells	Daily
Stored Containers	. Check for drum leaks or swelling	Daily
	. Check that drums are not open	Daily
	. Check for proper placement	Daily
	. Check adequacy of aisle space	Daily

Table C-III: Container Storage Inspection Schedule (continued)

<u>ITEM</u>	<u>INSPECTION ELEMENT/TYPE OF PROBLEM</u>	<u>INSPECTION FREQUENCY</u>
	. Check height of stacks	Daily
	. Check container capacity	Daily
	. Check for proper labeling	Daily

Table C-IV: Bulk Storage Inspection Schedule

<u>ITEM</u>	<u>INSPECTION ELEMENT/TYPE OF PROBLEM</u>	<u>INSPECTION FREQUENCY</u>
Tank Truck loading/ Unloading Area	. Check for evidence of spills or releases in unloading area	Daily
	. Check for removal of spill absorbent and cleanup materials	Daily
	. Check sump, grating and curbs for cracks or other damage	Weekly
	. Inspect hoses for deterioration or leakage	Weekly
	. Inspect containment system for deterioration	Weekly
	. Check for cracks and gaps in base, dike and sumps	Daily
	. Check for evidence of seepage outside containment (e.g. discoloration)	Daily
	. Check for debris, cleanup residue, improperly stored equipment	Daily
	. Inspect tank exterior for cracks, leaks, discoloration, and obvious deformation	Daily
	. Check tank integrity	Annually

Table C-IV: Bulk Storage Inspection Schedule (continued)

<u>EQUIPMENT</u>	<u>INSPECTION ELEMENT/TYPE OF PROBLEM</u>	<u>INSPECTION FREQUENCY</u>
Access Hatches, Vents, and Sampling Ports	. Check for leaks	Daily
	. Check for damage	Daily
Fill/Drain and Overflow Piping	. Inspect piping for leaks	Daily
	. Inspect valve seals for leaks	Daily
	. Check that handles are not bent or damaged	Daily
Liquid Levels	. Check if operators log book is up to date	Daily
	. Check tank liquid level indicators for operability	Daily
Cathodic Protection	. Proper operation	Annually
	. Sources if impressed current	Bi-Monthly
All Ancillary	. Visual inspection for leaks	Daily
	. Conduct leak test or approved integrity assessment	Annually
Safety Vents, Rupture Discs	. Check for blockage, tampering or rupture	Daily

Table C-V: Stabilization Area Inspection Schedule

<u>EQUIPMENT</u>	<u>INSPECTION ELEMENT/TYPE OF PROBLEM</u>	<u>INSPECTION FREQUENCY</u>
Stabilization Process Area	. Check for evidence of spilled material on the floor.	Daily
	. Check communication system.	Daily
	. Check sump for collected material.	Daily
	. Check operating log (up to date).	Daily
	. Check floor for cracks.	Weekly
	. Check sump for deterioration	Weekly
	. Check for improperly stored equipment.	Weekly
	. Inspect pug mill.	Weekly
	. Inspect air pollution control equipment.	Weekly
	. Inspect conveyors.	Weekly

Table C-VI: Laboratory Inspection Schedule

<u>EQUIPMENT</u>	<u>INSPECTION ELEMENT/TYPE OF PROBLEM</u>	<u>INSPECTION FREQUENCY</u>
Sample Disposal System	. Observe if proper disposal procedures are in use.	Daily
Ventilation/Hooding System	. Check operability.	Daily
Sampling Equipment	. Check for proper placement.	Weekly
	. Check proper decontamination.	Weekly
	. Check for disposal of cleanup materials in proper container.	Daily

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Attachment D

Approved RCRA Permit Application Identification
for

Heritage Environmental Services

Lemont Facility

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Section	Approved Section Edition
A. Part A Application	12/03/92
B. Facility Description	06/04/90
C. Waste Characteristics	02/91
D. Process Information	02/92
E. Groundwater Monitoring	11/89
F. Procedures to Prevent Hazards	06/04/90
G. Contingency Plan	06/04/90
H. Personnel Training	11/89
I. Closure and Post-Closure Requirements	12/23/91
J. Other Federal Laws	11/89
K. Part B Certification (Technical Data)	02/91
L. Continuing Releases at Permitted Facilities	11/89
M. Research Development and Demonstration Permits	02/91
X. Miscellaneous Units	02/91

<u>Attachments</u>	<u>Agency Reception Date of Approved Version</u>
B-1: USGS Maps (a & b)	12/01/89
B-2: Topographic Map	12/01/89
B-3: Wind Rose	12/01/89
B-4: FIA Flood Map	12/01/89
B-5: Traffic Patterns	06/04/90
B-5a: Access Road Load Bearing Capacity	11/89
B-6: Map Requirements-IEPA Form	06/04/90
B-7: Lemont Site Plan with 100 Year Floodplain	06/05/90
C-1: Waste Analysis Plan	03/01/91
C-2: 40 CFR Part 264 -- Appendix V	01/89
D-1a: Drum Storage/Processing Building Layout	06/05/90
D-1b: Profile View of Drum Storage/Processing Building	12/01/89
D-1c: Profile View of Drum Storage/Processing Building Secondary Containment Detail	12/01/89
D-2: DOT Storage Guide	11/89
D-2a: Drum labels	06/05/90
D-2b: Portable Pumps Manufacturer Information	06/05/90
D-2c: Drum Grabbers Manufacturer Information	06/05/90
D-3: Dispersion Operations	12/01/89
D-3a: Drum Processing Unit, Fuels Blending System Simplified Process Flow and Material Balance	03/01/91
D-3b: Drum Processing Unit, Fuels Blending System Process Schematic	03/01/91
D-3c: Drum Processing Unit, Fuels Blending System System Layout and Elevations	03/01/91

<u>Attachments</u>	<u>Agency Reception Date of Approved Version</u>
D-3d: Drum Processing Unit, Fuels Blending System Drum Processing Layout and Elevations	03/01/91
D-3e: Drum Processing Unit, Fuels Blending System Waste Liquid Piping Schematic	03/01/91
D-3f: Drum Processing Unit, Fuels Blending System Enclosure Vacuum, Fire Prevention and Suppression System	03/01/91
D-3g: Drum Processing Unit, Fuels Blending System Control Panel #2 Drum Processing	03/01/91
D-3h: Drum Processing Unit, Fuels Blending System Control Panel #3 Process Control	03/01/91
D-3i: Drum Processing Unit, Fuels Blending System Drum Movement - Isometric	03/01/91
D-3j: Drum Processing Unit, Fuels Blending System Emission Potentials	03/01/91
D-3k: Drum Processing Unit, Fuels Blending System Operations Manual	04/09/92
D-4a: Pipe Rack Design	12/01/89
D-4b: Pipe Rack Design	12/01/89
D-5: Shredder Process Flow Diagram	12/01/89
D-6: Shredder Design Drawing	12/01/89
D-7: Outdoor Drum Storage Area Layout	12/1/89
D-7a: For Flammable Storage	03/01/91
D-8: Treatment/Storage Operating Logs	06/05/90
D-9: Van Trailer Containment Design	12/01/89
D-9a: Van Trailer Containment Sealer Specifications	12/01/89
D-10: Labpack Storage Units Design Specifications	12/01/89
D-11: Sikagard Coating Specifications	12/01/89

<u>Attachments</u>	<u>Agency Reception Date of Approved Version</u>
D-12: HDPE Liner Typical Construction Detail	12/01/89
D-13: HDPE Liner Specifications & Properties	12/01/89
D-13a: Engineering Assessment of Outdoor Tank & Drum Storage Dike	12/01/89
D-14: Oil/Hydrocarbon Treatment System Design Layout	12/01/89
D-14a: Lime Slurry Operations Design Layout	12/01/89
D-14b: Examples of Coatings Systems	06/05/90
D-15: Existing Tank Assessment Report	12/01/89
D-16: Fixation Building Site Plan	12/01/89
D-17: Fixation Building Design Schematic	12/01/89
D-18: Proposed Tank Systems Assessment Report	12/01/89
D-19: Piping & Instrumentation Diagram -- Oil/Hydrocarbon	12/01/89
D-19a: Piping & Instrumentation Diagram -- Oil/Hydrocarbon Treatment System -- Water & Steam	12/01/89
D-19b: Piping & Instrumentation Diagram -- Barge Cleaning Facilities	12/01/89
D-20: Standard Proposed Tank(s) Design	12/01/89
D-21a: Cyanide Reactor Vessel Design	12/01/89
D-21b: Cyanide Reactor Vessel Design	12/01/89
D-22: Filter Press Design Drawing	12/01/89
D-23: Pugmill Design Drawings	12/01/89
D-23a: Bulk Dust Storage Silo Design	12/01/89
D-24: Oil/Hydrobon Treatment Tank System -- Process Flow	12/01/89
D-25: Stabilization System Process Flow	12/01/89
D-26: Cyanide Destruction System Process Flow	12/01/89

<u>Attachments</u>	<u>Agency Reception Date of Approved Version</u>
D-26a: Cyanide Destruction Process Flow W/P&I	12/01/89
D-27: Acid/Base Neutralization System Process Flow	12/01/89
D-28: Acid Treatment (Lime Slurry) Operations Process Flow W/P&I	12/01/89
D-28a: Fixation Building Facilities Piping & Instrumentation	12/01/89
D-29 (a-g): Fixation Building Design Detail	12/01/89 (ALL)
D-30: Existing Tank Retrofit Design by USCE	06/05/90
D-31: CANNON BEAR Manufacturer Information	06/05/90
D-32: Sika Guard Manufacturer Specifications	06/05/90
D-33: Pumps	06/05/90
D-34a: New Tank Assessment - Carbon Absorption Unit	
F-1: Daily Inspection Schedule & Forms	06/05/90
F-2: Weekly Inspection Schedule & Forms	06/05/90
F-3: Tanks Monitoring Equipment Manufacturer Information	06/05/90
F-4: Proposal on Installation of Fencing	04/09/92
F-5: Confined Space Entry Procedures	06/05/90
G-1: Contingency Plan	06/05/90
G-2: Documentation of Agreements w/State & Local Authorities	12/01/89
H-1: Safety Training Review	12/01/89
H-2: Respirator Program	12/01/89
H-3: OSHA Hazard Communication Standard	12/01/89
H-4: Training Record Documentation Forms	12/01/89
H-5: Training Director(s) Qualifications	12/01/89

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<u>Attachments</u>	<u>Agency Reception Date of Approved Version</u>
H-6: Supplementary Training Schedule	06/05/90
I-1: Closure Plan	12/23/91
I-2: Financial Assurance Mechanism for Closure	
L-1: Release Incidents Reports	12/01/89

Attachment E

Required Scope of Work for a RCRA

Facility Investigation

at

Heritage Environmental Services

Lemont Facility

ILD085349264

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Scope of Work for a RCRA Facility Investigation
Heritage Environmental Services Lemont, Illinois Facility
ILD085349264
DLPC 0311620007

This Scope of Work relates specifically to the RCRA Facility Investigation (RFI) of the solid waste management units identified in Section IV of this RCRA Permit, which the Permittee is required to perform under the terms of this RCRA permit. In this Scope of Work, "Agency's DLPC" refers to the Illinois Environmental Protection Agency's Division of Land Pollution Control, "Permittee" refers to Heritage Environmental Services/MWRDCG and "SWMU" refers to Solid Waste Management Unit.

I. PURPOSE

The purpose of the RFI is to determine the nature and extent of releases of hazardous waste or hazardous constituents, if any, from SWMUs located at the facility and to gather data necessary to prepare a Corrective Action Plan (CAP). Specifically, the information gathered during the RFI will be used to help determine the need, scope and design of a corrective action program.

II. SCOPE OF WORK

The Scope of Work for the RFI is divided into three phases -- Phases I, II and III.

1. The purpose of Phase I is to provide information on the characteristics and integrity of each unit and conduct field activities, as necessary, to determine if a SWMU has released, is currently releasing, or has the potential to release hazardous waste and/or hazardous constituents to the soil or air which may be impacted for that SWMU.
2. Phase II of the RFI will be required if the Agency's DLPC determines from the data obtained in Phase I that, for any SWMU, (1) a release has occurred to the soil or air, (2) a release is occurring to the soil or air, or (3) the results are inconclusive. The purpose of Phase II is to define the extent of releases to the soil or air from these SWMUs.

3. Phase III will be required if the Agency's DLPC determines from the data obtained in Phase II that hazardous wastes or hazardous constituents may have migrated to the groundwater. The purpose of Phase III is to define the extent of releases both on-site and off-site to the ground water from SWMUs identified in Phase I or II to have potentially released hazardous waste or hazardous constituents to the groundwater.

Each phase of the investigation is divided into three subparts. The first subpart deals with the development of a RFI Workplan by the Permittee. The second subpart is the implementation of the RFI. The final subpart covers the submission of reports of activities and results of the RFI.

III. RFI WORKPLANS

The Permittee shall prepare a detailed workplan for each phase of the RFI which contains detailed background information related to the facility and the SWMUs listed in Condition B.1 of Section IV of the permit and which describes procedures for each phase of the RFI in accordance with the schedule in Section IV of the permit. The RFI Workplan must, at a minimum, contain the information identified in III.A-III.H below. The information in the workplan must be presented in a manner which is similar to the format set forth in these sections. Information provided in each Phase of the RFI may be incorporated into the workplan for the subsequent Phase by reference. Information already submitted in the Part B permit application may also be incorporated by reference into the workplans when appropriate.

A. GENERAL FACILITY INFORMATION

The following information must be provided (to the extent known) in the Phase I RFI Workplan regarding the facility overall:

1. A description of the facility, including the nature of its business, both past and present. This description should identify (1) the size and location of the facility, (2) the raw materials used and products manufactured at the facility and (3) the Standard Industrial Code which describes the type of activities carried out at the facility;
2. Identification of past and present owners;
3. A discussion of the facility's past and present operations, including solid and hazardous waste generation, storage, treatment and disposal activities;

4. A brief discussion of each of the SWMUs identified in Condition B.1 of Section III of this permit;
5. A description of all significant surface features (ponds, streams, depressions, etc.) and wells within 1,500 feet of the facility;
6. A description of all land usage within 1,500 feet of the facility, including all known SWMUs;
7. Identification of all human populations and environmental systems susceptible to contaminant exposure from releases from the SWMUs within a distance of at least 1,500 feet of the facility;
8. A description of any interim corrective action measures which were or are being planned or undertaken at the facility;
9. Approximate dates or periods of past spills or releases, identification of material spilled, amount spilled, location, and a description of the response actions, including any inspection reports or technical reports generated as a result of the spill or release.
10. A current topographic map(s) showing a distance of at least 1,500 feet around the facility and other information described below, and at a scale of one inch equal to not more than 200 feet. Contours shall be shown on the map, with the contour interval being sufficient to clearly show the pattern of surface water flow. If such a map is not available, the workplan shall describe the method for generating the map for inclusion in the Phase I report. The map shall clearly show the following:
 - a. Map scale, North arrow, date, and location of facility with respect to Township, Range and Section;
 - b. Topography and surface drainage depicting all waterways, wetlands, 100-year floodplain, drainage patterns, and surface water areas;
 - c. Property lines, with the owners of all adjacent property clearly indicated;
 - d. Surrounding land use;

- e. Locations and boundaries of (1) all solid waste, including hazardous waste, management units, both past and present, (2) spill areas and (3) other suspected areas of contamination;
- f. All injection and withdrawal wells, and
- g. All buildings, tanks, piles, utilities, paved areas, easements, rights-of-way, and other features including all known past and present product and waste underground tanks or piping.

The map(s) shall be of sufficient detail and accuracy to locate and report all current and future RFI work performed at the site. The base map(s) shall be submitted in the Phase I report and modified in subsequent reports and workplans as appropriate.

B. NATURE AND EXTENT OF CONTAMINATION

The Phase I Workplan must contain the following information, to the extent known, for each of SWMUs identified in Condition B.1 of Section IV of the permit:

- 1. Location of unit/area;
- 2. The horizontal and vertical boundaries of each unit/area;
- 3. Details regarding the construction, operation and structural integrity of each unit/area;
- 4. A description of all materials managed and/or disposed at each SWMU including, but not limited to, solid waste, hazardous wastes, and hazardous constituents to the extent they are known or suspected over the life of the facility including
 - (a) Type of waste or hazardous constituents placed in the units, including source, hazardous classification, quantity and chemical composition;
 - (b) Physical and chemical characteristics, including physical form, physical description, general chemical class, cohesiveness of the waste;
- 5. Quantities of solid and hazardous wastes managed by the unit;

6. The history of the utilization of each SWMU and the surrounding areas, including the period of operation and age of the unit;
7. Methods used to close the unit, if applicable;
8. All available data and qualitative information on the level of contamination present at the SWMU;
9. A description of the existing degree and extent of contamination at each unit area.
10. Identification of additional information which must be gathered regarding 1 thru 9 above;

C. ADMINISTRATIVE OUTLINE

The Permittee shall submit as part of each Phase Workplan a general outline defining the RFI objectives, technical approach, and scheduling of tasks during that phase of the RFI. The Permittee shall prepare a Project Management Plan as part of each Phase Workplan which will include a discussion of the technical approach, schedules, budget, and personnel. The Project Management Plan must also include a description of the qualifications of personnel performing or directing the RFI, including contractor personnel. This plan shall also document the overall management approach to the current Phase of the RFI.

D. SITE-SPECIFIC SAMPLING PLANS

The Permittee shall prepare detailed site-specific sampling plans for each phase of the RFI which address all field activities needed to obtain site-specific data. The plans must contain: a statement of sampling objectives, specifications of equipment, analyses of interest, sample types, sample locations and schedules for sampling. Wherever appropriate, Test Methods for Evaluating Solid Wastes, Third Edition, (SW-846), including Final Update I, sampling, analysis, and statistical methods shall be utilized. The plans must address all levels of the investigations, as well as types of investigations conducted on specific environmental media (i.e., soil, air, surface water, groundwater). The plans must describe in detail how each phase of the RFI will be implemented.

1. Phase I Sampling and Analysis Plan

The Phase I Sampling and Analysis Plan must describe methods to determine whether any of the SWMUs to be investigated have released or are currently releasing hazardous waste or hazardous constituents into the environment. This Phase I Sampling Plan shall be submitted as part of the RFI Phase I Workplan. The workplan must contain procedures for a:

a. Soils Investigation

The Phase I Workplan must provide for a determination of the presence or absence of releases of hazardous waste and hazardous constituents into the soil around and under each SWMU which must be investigated, based upon the information present in the Phase I Work Plan. To meet this requirement, the workplan must identify:

- (1) The procedures which will be used to describe and characterize the soils in and around the subject SWMU(s) down to the water table, including, but not limited to the following:
 - (a) Unified Soil Classification;
 - (b) Soil profile; and
 - (c) Elevation of water table;
- (2) The parameters and hazardous constituents to be used to establish the presence or absence of contamination. These must include, but are not limited to, specific hazardous constituents of wastes known or suspected to have been managed by the SWMU(s) as identified and determined by the unit characterization information presented in the work plan.
- (3) The basis for selecting the parameters and constituents in (3) above.
- (4) The methodology for choosing sampling locations, depths, and numbers of samples.

- (5) Sampling procedures for each parameter or constituent to be analyzed. All soil samples taken must be handled in accordance with 40 CFR 261, Appendix III and the Agency's DLPC soil volatile sampling procedure if volatiles are to be analyzed. All other environmental media samples must be collected and handled in accordance with EPA approved and standardized methods for evaluation of solid wastes.
- (6) Analytical methods to be used in the analysis of the samples. If any of these methods is not consistent with those specified in Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (U.S. EPA SW-846), a complete description of the methods to be used and the justification for not using the appropriate SW-846 methods must be provided.
- (7) Procedures and criteria for evaluating analytical results to establish the presence or absence of any contamination.

b. Air Investigation

- (a) The Phase I Workplan must provide for an investigation to characterize the particulate and gaseous contaminants released into the atmosphere from the old aerosol can unit. A determination of "no impact" must be justified and documented to the satisfaction of the Agency's DLPC. This investigation shall provide the following information:
 - (1) A description of the horizontal and vertical direction and velocity of contaminant movement;
 - (2) The rate and amount of release; and
 - (3) The chemical and physical composition of the contaminants release, including horizontal and vertical concentration profiles.

The Permittee shall document the procedures used in making the above determinations.

(b) The Phase I Workplan must provide for characterizing the climate in the vicinity of the facility. Such information shall include, but not be limited to:

(1) A description of the following parameters:

- (a) Annual and monthly rainfall averages;
- (b) Monthly temperature averages and extremes;
- (c) Wind speed and directions;
- (d) Relative humidity and dew point;
- (e) Atmospheric pressure;
- (f) Evaporation data;
- (g) Development and inversions; and
- (h) Climate extremes that have been known to occur in the vicinity of the facility, and the frequency of occurrence.

(2) A description of topographic and manmade features which affect air flow and emission patterns, including:

- (a) Ridges, hills or mountain areas;
- (b) Canyons or valleys;
- (c) Surface water bodies;
- (d) Wind breaks and forests;
- (e) Buildings; and
- (f) Other man-made features.

2. Phase II Sampling and Analysis Plan

The Phase II Sampling and Analysis plan, if necessary, must describe procedures to determine the nature and extent of hazardous waste and/or hazardous constituents released to the soil. This workplan shall address and/or include, at a minimum:

- (1) A description of what is known about the horizontal and vertical extent of contamination;
- (2) A description of relevant contaminant and environmental chemical properties within the affected source area and plume, including solubility, specification absorption, leachability, exchange capacity biodegradability, hydrolysis, photolysis, oxidation and other factors that might affect contaminant migration and transformation (if known);
- (3) Specific contaminant concentrations, if known;
- (4) The horizontal and vertical velocity and direction of contaminant movement (if known);
- (5) An extrapolation of future contaminant movement (if known); and
- (6) The methods and criteria to be used to define the boundaries of the plume(s) of contamination;
- (7) The parameters and constituents to be used to establish the presence or absence of a plume of contamination. This must include, but need not be limited to, specific hazardous constituents of wastes known or suspected to have been placed in the SWMUs;
- (8) The basis for selecting the parameters and constituents in 7 above;
- (9) The methodology for choosing sampling locations depths, and numbers of samples;
- (10) Sampling procedures for each parameter or constituent to be analyzed;
- (11) Analytical methods to be used in the analysis of the samples. If any of these methods are not identical to those specified in Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, (US EPA SW-846), a complete description of the methods to be used and the justification for not using the SW-846 methods shall be provided; and

- (12) Procedures and criteria for evaluating analytical results to establish the presence or absence of any plume of contamination.

3. Potential Receptors

If (1) a release to air or groundwater is detected, or (2) the Permittee desires to establish site-specific soil cleanup objectives, then the subsequent RFI Phase Report must provide data describing the human populations and environmental systems within a radius of 1,500 feet of the facility boundary that may be affected by releases from SWMUs must be collected and submitted to the Agency. The following characteristics shall be identified.

- a. Local uses and possible future uses of groundwater:
 - (1) type of use (e.g. municipal or residential drinking water source, industrial, etc.); and
 - (2) Location of groundwater users, including wells and discharge areas.
- b. Local uses and possible future uses of surface waters draining the facility:
 - (1) Domestic and municipal;
 - (2) Recreational;
 - (3) Agricultural;
 - (4) Industrial; and
 - (5) Environmental.
- c. Human use of, or access to, the facility and adjacent lands, including, but not limited to:
 - (1) Recreation;
 - (2) Agriculture;
 - (3) Residential;
 - (4) Commercial;

- (5) Zoning; and
 - (6) Location between population locations and prevailing wind direction.
- d. A description of the biota in surface water bodies on, adjacent to, or affected by the facility.
 - e. A description of ecology of, and adjacent to the facility.
 - f. A demographic profile of the people who use or have access to the facility and adjacent land, including, but not limited to: age, sex, and sensitive subgroups.
 - g. A description of any endangered or threatened species near the facility.
4. Phase III - Hydrogeologic and Hydrologic Investigation

The potential for releases to groundwater from a given SWMU must be investigated as part of Phase III of the RFI if the Agency's DLPC determines from the data obtained during the RFI Phase II investigation that releases to soil from a given SWMU may have migrated to the groundwater below the site, or the data is inconclusive. The RFI Phase III hydrogeologic and geologic investigation plan must provide descriptions of groundwater monitoring systems which will provide adequate data on the detection, nature, extent and rate, and concentration of any releases to groundwater or surface water.

Groundwater monitoring will not be required for a SWMU during the RFI Phase III investigation, if the Permittee can demonstrate, based upon the data obtained from the soils investigation under the RFI Phase I environmental media investigation that no releases have occurred from the SWMU(s), or, based upon the data obtained from the rate and extent evaluation under the RFI Phase II investigation that contaminants from the subject SWMU(s) have not entered the groundwater. The Agency reserves the right to require a groundwater monitoring program for SWMUs based upon interim or final corrective measures chosen, provided that the corrective measures call for on-site final disposition of contamination or long term remedial activities.

If releases of hazardous waste or hazardous constituents have entered the groundwater at a particular SWMU, the RFI Phase III Workplan shall address a hydrological investigation and groundwater monitoring for a SWMU or group of SWMUs at the time the Agency notifies the Permittee that a RFI Phase III Workplan is required. This workplan must include:

Information, as it is available, regarding:

a. Information, as it is available, regarding:

- (1) The regional geologic and hydrogeologic characteristics in the vicinity of the facility, including stratigraphy, hydrogeologic flow and the areas of recharge and discharge;
- (2) Any topographic or geomorphic features that might influence the groundwater flow system;
- (3) The hydrogeologic properties of all of the hydrogeologic units found at the site down to the first bedrock aquitard, including: hydraulic conductivity and porosity, texture, uniformity and lithology; an interpretation of hydraulic interconnections between saturated zones; and zones of significant fracturing or channeling in the unconsolidated and consolidated deposits;
- (4) Using the facility map as a base, isopach and structural contour maps, and at least two (2) geologic cross sections showing the extent (depth, thickness, lateral extent) of all hydrogeologic units within the facility boundary, down to the first bedrock aquitard, identifying: all units in the unconsolidated and consolidated deposits; zones of higher permeability or lower permeability that might direct or restrict the flow of contaminants; perched aquifers; and the first saturated zone that may have a potential for migration of contaminants;
- (5) The water level or fluid pressure monitoring, including: water level contour maps and vertical

gradient sections, well or piezometer hydrographs and interpretation of the flow system, interpretation of any changes in hydraulic gradients, and seasonal fluctuation; and

- (6) Any man-made influences that may affect the hydrogeology of the site, identifying local water supply and production wells and other man-made hydraulic structures within 1500 feet of the facility boundary.
- b. Procedures for obtaining information identified in III.D.4.a above which was not obtained during preparation of the workplan.
- c. Documentation that sampling and analysis of groundwater monitoring wells will be carried out in accordance with the approved Data Collection Quality Assurance Plan as required in III.F. below. The Plan shall provide information on the design and installation of all groundwater monitoring wells. The designs shall be in accordance with the latest version of the Technical Enforcement Guidance Document (TEGD), where appropriate, and the latest version of the Agency's DLPC design criteria. At a minimum:
 - (1) The groundwater monitoring wells must consist of monitoring wells installed in the uppermost aquifer and in each underlying aquifer (e.g., sand units) which are hydraulically interconnected;
 - (2) At least one background monitoring well in each aquifer shall be installed hydraulically upgradient (i.e., in the direction of increasing static head) from the limit of the SWMUs, except to the extent that SWMUs in close proximity can be investigated with the same background well system. The number, locations, and depths must be sufficient to yield groundwater samples that are: (a) representative of background quality in the uppermost aquifer and units hydraulically interconnected beneath the facility; and (b) not affected by SWMUs at the subject facility; and

- (3) Monitoring wells in each appropriate aquifer shall be installed hydraulically downgradient (i.e., in the direction of decreasing static head) at the limit of the SWMU or at the limit of each group of proximate SWMUs. Their number, locations and depths must ensure that they allow for detection of releases of hazardous waste or hazardous constituents from the SWMU(s).

d. A sampling plan which specifies:

- (1) The parameters and constituents to be used to establish the presence or absence of a plume of contamination. These must include, but need not be limited to, specific hazardous constituents of wastes determined to have been placed in or released from the SWMUs (including any possible degradation products);
- (2) The basis for selecting the parameters and constituents in (1) above;
- (3) The methodology for investigating the hydrostratigraphic units at site, and the locations, depths, and concentration specifications for each monitoring well;
- (4) Sampling procedures for each parameter or constituent to be analyzed, including sampling frequency;
- (5) Analytical methods to be used in the analysis of the samples. If any of these methods is not consistent with those specified in Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (U.S. EPA SW-846), a complete description of the methods to be used and the justification for not using the appropriate SW-846 methods will be provided; and
- (6) Procedures and criteria for evaluating analytical results to establish the presence or absence of any plume of contamination.

If the Agency's DLPC determines from the data obtained during the Phase III investigation that releases of hazardous waste or hazardous constituents have occurred to

the groundwater or that the data are inconclusive, the Permittee will be required to submit a Groundwater Monitoring Plan to determine the vertical and horizontal distribution of the contaminants identified and to predict the long-term disposition of the contaminants. This groundwater monitoring program will require proposals for establishing the locations, depths, and construction specifications for additional monitoring wells necessary to delineate the extent of any plume. The methodology of the investigation, the sampling procedures, analytical methods, and procedures for evaluating analytical results to establish the extent of the plume shall be the same as above unless specifically identified in the Phase III workplan. The Groundwater Monitoring Plan must also specify the criteria which will be used to determine the limits of the plume.

E. DATA COLLECTION QUALITY ASSURANCE

The Permittee shall prepare a plan to document all monitoring procedures, sampling, field measurements, and sample analysis performed during the investigation so as to ensure that all information, data and resulting decisions are technically sound, statistically valid, and properly documented. This shall be submitted with each Phase Workplan.

Quality Assurance. Sampling methods and equipment, as well as laboratory analytical methods, shall follow guidance in U.S. EPA's SW-846, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (see 40 CFR 260.11) if appropriate. All field sampling methods not included in SW-846 must be approved by the Agency's DLPC before they are used in the RFI. This includes methods such as drilling, borings, etc. When applicable, standard procedures, as defined by U.S. EPA, IEPA or ASTM, should be followed. All soil samples which are to be taken must be handled in accordance with 40 CFR, Part 261, Appendix III and the Agency's soil volatile sampling procedures if volatile sampling is required. The analytical methods which will be used must be specified and must be approved by the Agency before they are implemented.

F. DATA MANAGEMENT PLAN

The Permittee shall develop and initiate a Data Management Plan to document and track investigation data and results. This Plan shall identify and set up data documentation materials and procedures,

project file requirements, and project-related progress reporting procedures and documents. The Plan shall also provide the format to be used to present the raw data and conclusions of the investigation(s). This plan shall be submitted with each Phase Workplan.

G. IMPLEMENTATION OF INTERIM MEASURES

At any time during the RFI the Permittee may initiate interim measures for the purpose of preventing continuing releases and/or mitigating the results of releases and/or mitigating the migration of hazardous wastes or hazardous constituents. It shall not be necessary to conduct all phases of the RFI investigation if the Agency's DLPC and the Permittee agree that a problem can be corrected, or a release cleaned up, without additional study and/or without a formal CMS.

The Permittee shall submit information on any past or ongoing interim measures which have been or are to be undertaken to abate threats to human health and the environment to the Agency's DLPC for approval. This information shall include, at a minimum:

1. Objectives of the interim measures: how the measure is mitigating a potential threat to human health and the environment and/or is consistent with and integrated into any long term solution at the facility;
2. Design, construction, and maintenance requirements;
3. Schedules for design and construction; and
4. Schedules for progress reports.

If the Agency's DLPC determines that a release cannot be addressed without additional study and/or a formal CMS then the Agency's DLPC will notify the Permittee that these must be performed. Any proposal made under this provision or any other activity resulting from such proposal, including the invocation of dispute resolution, shall not affect the schedule for implementation of the RFI or of any other portion of the permit.

If the Agency determines that interim measures are necessary to protect human health or the environment, the Permittee will be notified by way of a permit modification.

H. HEALTH AND SAFETY PLAN

Under the provisions of 29 CFR 1910 (54 FR 9,295, March 6, 1989), cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring, decontamination and training. General site workers engaged in activities that expose or potentially expose them to hazardous substances must receive a minimum of 40 hours of safety and health training off site plus a minimum of three days of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations. These requirements must be met during each phase of the RFI.

IV. IMPLEMENTATION OF RFI

The Permittee shall conduct those investigations necessary to characterize the site, and to determine the nature, rate and extent of migration, and concentrations of hazardous waste and hazardous constituents, if any, released from the SWMU's into the surface water and sediments, groundwater, air, and soil. The investigations must be of adequate technical content to support the development and evaluation of a corrective action program, if one is deemed necessary by the Agency's DLPC.

The investigation activities shall follow the plans and procedures set forth in the Workplan(s) and the RFI schedule. Any actual or anticipated deviations from the Workplan(s) or the RFI schedule shall be reported no later than the time of submission of the next quarterly report required by Section V subsequent to the determination of need or actual deviation from the Workplan.

V. SUBMISSION OF REPORTS AND RESULTS OF RFI ACTIVITIES

The Permittee must prepare and submit quarterly progress reports and a final report on the activities and results of each Phase of the RFI activities as appropriate. The progress reports shall contain at a minimum:

1. An estimate of the percentage of the investigation completed;
2. Summary of activities completed during the reporting period;

3. Summaries of all actual or proposed changes to the Workplan or its implementation;
4. Summaries of all actual or potential problems encountered during the reporting period;
5. Proposal for correcting any problems;
6. Projected work for the next reporting period; and
7. Other information or data as requested in writing by the Agency's DLPC.

The workplans and reports which must be submitted to the Agency for review and approval in accordance with the schedule set forth in the following table:

<u>Facility Action</u>	<u>Due Date</u>
Submission of RFI Phase I Workplan	Within 120 days after effective date of the permit
Completion of RFI Phase I investigation and submission of Phase I Report and Summary	To be specified in the Phase I Workplan
Submission of RFI Phase II Workplan	Within 90 days after notification of the need of Phase II by Agency's DLPC
Completion of RFI Phase II investigation and submission of Phase II Report and Summary	To be specified in the Phase II workplan
Submission of RFI Phase III Workplan	Within 90 days after notification of the need for Phase III
Completion of RFI Phase III investigation and submission of Phase III Report and Summary	To be specified in the Phase III Workplan
Periodic Progress Reports	To be specified in workplans
Submission of Interim Measures Plan	Within 45 days from the date interim measures are determined to be necessary

Attachment F
Closure Certification Forms
for
Heritage Environmental Services
Lemont Facility
ILD085349264
DLPC No. 0311620007

This statement is to be completed by both the responsible officer and by the registered professional engineer upon completion of closure. Submit one copy of the certification with original signatures and three additional copies.

The hazardous waste management unit at the facility described in this document has been closed in accordance with the specifications in the approved closure plan. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

USEPA ID Number: ILD085349264
DLPC ID Number: 0311620007

Facility Name:
Heritage Environmental Services

Signature of Owner/Operator

Name and Title

Signature of Registered P.E.

Name of Registered P.E. and Illinois
Registration Number

Date

(P.E. Seal)

ILD085349264
DLPC 0311620007
Page G-1 of G-3

Attachment G
Certification and Documentation
for Construction
for
Heritage Environmental Services
Lemont Facility
ILD085349264
DLPC No. 0311620007

When submitting certifications required by this Part B permit for construction of any new unit, please complete the attached certification form. This will help to ensure that the submittal reaches its proper destination and the certification will meet the regulatory requirements. Sending the Field Operations Section (F.O.S.) copy directly to the Field Office is acceptable as long as all copies have a completed copy of the enclosed form attached and you advise the Permit Section, in writing, that a copy has been sent to F.O.S.

A documentation report and as-built drawings (sealed and signed by an Illinois Professional Engineer) must be included with this certification. Information necessary to document the construction of the unit and to support the certification must be contained within the report. This report should include a thorough description of all construction data and drawings and should be formatted in a logical and orderly manner. The construction documentation report must contain at least the following items:

1. An introduction and summary which describes the scope and purpose of the project;
2. A description of all construction activities, including quality assurance and quality control;
3. As-built drawings of the unit and a description of any deviations from the plans and specifications approved in the permit.
4. A description of the test methods used and justification for any deviations from standard test methods;
5. A summary of test results, identification of any samples which did not meet the specifications and the corrective action and retesting which was undertaken in response to any failing test results;
6. Any necessary information associated with construction of the unit to document that construction was in accordance with the plans and specifications approved by the permit;
7. Information specifically required by the permit; and
8. Any available photographs of the unit.

CERTIFICATION

This statement is to be completed by both the responsible officer and the registered professional engineer upon completion of construction in accordance with 35 IAC Section 702.126. Submit one copy of the certification with original signatures and two additional copies. Forward these certification statements and any information required by the permit to the following address:

Illinois Environmental Protection Agency
Bureau of Land
Division of Land Pollution Control -- #24
Permit Section
2200 Churchill Road
Post Office Box 19276
Springfield, Illinois 62794-9276

FACILITY NAME: Heritage Environmental Services, Lemont Facility

IEPA SITE CODE: DLPC #0311620007

U.S. EPA ID NO.: ILD085349264

PART B PERMIT LOG #128

PERMIT (OR MODIFICATION) ISSUANCE DATE: March 24, 1993

PERMIT CONDITION NO. IS REQUIRING CERTIFICATION:

The _____ has been constructed in accordance with the specifications in the Part B. Documentation that the construction was in accordance with the permit is contained in the enclosed report. I certify under penalty of law that this document and all attachments were prepared under my direction of supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature of Owner/Operator

Name and Title

Signature of Registered P.E.

Name of Registered P.E. and
Illinois Registration Number

Date

(P.E. SEAL)

CLS:lat/sp/111q,1-88

B-128-11-1
cc: 11/29/1993
USEPA
Part B / Permit

HERITAGE ENVIRONMENTAL SERVICES, INC.



P.O. Box 337
Lemont, IL 60439
Phone: 708/739-1151
Fax: 708/739-9491

VIA CERTIFIED MAIL - RETURN RECEIPT REQUESTED

July 30, 1993

Mr. Clarence Smith
Permit Section, Division of Land Pollution Control
Bureau of Land, Environmental Protection Agency
State of Illinois
2200 Churchill Road
Springfield, Illinois 62794-9276

**Re: Class 1 Permit Modification Request
Miscellaneous Permit Clarifications
Heritage Environmental Services, Inc.
Lemont, Illinois
No.: DLPC 0311620007
USEPA Identification No.: ILD 085 349 264**

Dear Mr. Smith:

Please find the enclosed corrected version of page 3 of 3 of the 'List of Clarification Items and Corrections' submitted on July 21, 1993, as we discussed yesterday. This page will replace page 3 of 3 of the original submittal. Please call if you have any questions.

Sincerely,

HERITAGE ENVIRONMENTAL SERVICES, INC.

Robert O. Garcia

Robert Garcia
Plant Manager

cc: Compliance Department, Heritage Environmental Services, Inc.
C. Hogarth, Heritage Remediation/Engineering, Inc.
R. Wilkins, Heritage Remediation/Engineering, Inc.

RECEIVED

AUG 03 1993

USEPA - SOL
PERMIT SECTION



Recycled Paper

**LIST OF CLARIFICATIONS AND CORRECTIONS
FINAL RCRA HAZARDOUS WASTE MANAGEMENT PERMIT
HERITAGE ENVIRONMENTAL SERVICES, INC.
LEMONT, ILLINOIS
DLPC 0311620007
ILD 085 349 264**

ITEM DESCRIPTION	CLARIFICATION OR CORRECTION
<p>Section VI.B.9; Page VI-6 of VI-13; Page 72</p>	<p>Heritage has discussed this comment with the IEPA and the IEPA has agreed to revise the section to allow Heritage to maintain documentation in the operating record rather than providing separate Agency submittals. Heritage suggests revised language for Section VI.B.9 as follows:</p> <p style="padding-left: 40px;">"9. All hazardous wastes accepted at this site for blending into a hazardous waste fuel to be burned for energy recovery must have a minimum heat of combustion value of 5000 Btu per pound. This requirement will be waived if Heritage documents in the facility operating record that the receiving facility has interim status or a Part B permit in accordance with 35 IAC Parts 725 or 724 respectively, or is in compliance with 35 IAC 726 Subpart H regarding boilers and industrial furnaces. Compliance with this requirement can be demonstrated through copies of relevant permit pages, agency acknowledgement letters, or certifications."</p>
<p>Section VI.E.1; Page VI-9 of VI-13, Page 75</p> <p>Clarification in Implementing the Contingency Plan</p>	<p>Heritage requests to clarify the language concerning implementation of the Contingency Plan. It is Heritage's understanding that implementation of the Contingency Plan will be performed in accordance with the most recent version of the plan until a revised Contingency Plan is approved that addresses the issues described in Section VI.E.3. Heritage requests the following revised language for Item 1:</p> <p style="padding-left: 40px;">"1. The Permittee shall follow the provisions of the approved contingency plan following a (1) release of hazardous waste in excess of quantity thresholds specified in the Contingency Plan (page 9) or, (2) off-site release of hazardous waste with the potential to threaten human health and the environment or, (3) fire or explosion which involves hazardous waste or which occurs in areas where hazardous waste is treated, stored or disposed."</p>

B-128 ni-1
cc: Requested USEPA
Part B / Permit
HERITAGE ENVIRONMENTAL SERVICES, INC.

P.O. Box 337
Lemont, IL 60439
Phone: 708/739-1151
Fax: 708/739-9491



VIA CERTIFIED MAIL - RETURN RECEIPT REQUESTED

July 23, 1993

RECEIVED

JUL 26 1993

IEPA - BOL
PERMIT SECTION

Mr. Lawrence W. Eastep, P.E., Manager
Permit Section, Division of Land Pollution Control
Bureau of Land, Environmental Protection Agency
State of Illinois
2200 Churchill Road
Springfield, Illinois 62794-9276

Re: Class 1 Permit Modification Request
Miscellaneous Permit Clarifications
Heritage Environmental Services, Inc.
Lemont, Illinois
No.: DLPC 0311620007
USEPA Identification No.: ILD 085 349 264 ✓

Dear Mr. Eastep:

The purpose of this letter is to request a Class 1 permit modification for clarification of several items in the Part B permit for the Heritage Environmental Services, Inc. ("Heritage") treatment center in Lemont, Illinois. This request is the end result of several conversations with your staff and our letter dated May 11, 1993, in which Heritage agreed to forego a formal permit appeal after negotiating mutually-agreeable permit language.

The attached table identifies each issue and describes the correction or proposes clarification language to the Permit. Two of the items from Heritage's May 11 letter regarding the stabilization building have been deferred from this request for possible submission at a later date. In accordance with 35 IAC 703.281(a)(2), Heritage has included a copy of the facility mailing list notification regarding these permit modifications.

Thank you for your attention to this request. Please feel free to contact me at 708/739-1151 if you have questions or comments.

Sincerely,

HERITAGE ENVIRONMENTAL SERVICES, INC.

Robert D. Garcia

Robert Garcia
Plant Manager

cc: Clarence Smith, Illinois Environmental Protection Agency
Compliance Department, Heritage Environmental Services, Inc.
C. Hogarth, Heritage Remediation/Engineering, Inc.
R. Wilkins, Heritage Remediation/Engineering, Inc.



LIST OF CLARIFICATION ITEMS AND CORRECTIONS
FINAL RCRA HAZARDOUS WASTE MANAGEMENT PERMIT
HERITAGE ENVIRONMENTAL SERVICES, INC.
LEMONT, ILLINOIS
DLPC 0311620007
ILD 085 349 264

ITEM DESCRIPTION	CLARIFICATION OR CORRECTION
Cover Page to Permit Facility Permit Expiration Date Typographical Error	Please correct the typographical error in the permit expiration date from April 28, 1993 to April 28, 2003.
Header on Pages 1 through 188 of the Permit Typographical Error	Please correct the typographical error in the USEPA Identification Number from ILD085349265 to ILD085349264
Section I.E.1.a.iii.2.c. and d.; Page I-5 of I-12; Page 5 Volume restrictions on NFPA Class IC and Class II Liquids	Based on review of the August 17, 1990 Edition of ANSI/NFPA 30, Page 30-34, Table 4-8, the arrangement limitation for Class 1C Liquids and Class II Liquids is 4,400 gallons and 8,800 gallons respectively. Please correct the 2,860 gallon limitation specified at Section I.E.1.a.iii.2.c. and d. to 4,400 and 8,800 gallons respectively. Heritage recognizes that the limitation specified in the permit may be a result of specifying the condition based on the spacing limitation in an arrangement in the outdoor container storage area, however, Heritage believes the limitation does not account for double stacking in an arrangement for these types of liquids which is altered in NFPA 30. The containment volume required in 35 IAC 724 Subpart I for the outdoor storage area is adequate.
Section II.E.7.; Page II-8 of II-17; Page 20 Section II.I.4.; Page II-12 of II-17; Page 23 Application of consistent language in the permit for removing precipitation from containment areas.	Please revise the language concerning precipitation in Section II.E.7 and II.I.4 to be consistent with other language in the permit concerning removal of precipitation from secondary containment systems. The preferred language is found in Section I.J.3 (Page I-9 of I-12; Page 9) and is stated as follows: "The permittee shall begin removal of any precipitation that accumulates in the secondary containment systems and collection sumps by the next operating shift after the precipitation event has ended."

**LIST OF CLARIFICATION ITEMS AND CORRECTIONS
FINAL RCRA HAZARDOUS WASTE MANAGEMENT PERMIT
HERITAGE ENVIRONMENTAL SERVICES, INC.
LEMONT, ILLINOIS
DLPC 0311620007
ILD 085 349 264**

ITEM DESCRIPTION	CLARIFICATION OR CORRECTION
<p>Section III.C.6.; Page III-5 of III-12; Page 34</p> <p>Provision that all hazardous waste must possess a load bearing capacity of 2.0 tons per square foot.</p>	<p>This permit condition is only applicable to hazardous wastes landfilled in the State of Illinois per 35 IAC 729.310. The condition is not applicable to hazardous waste landfills in other states that may have more or less stringent requirements prior to landfilling. In the event that hazardous wastes are shipped from the Heritage facility in Illinois to a hazardous waste landfill in Illinois, Heritage will comply with the provisions for testing of the materials as established in 35 IAC 729.321 and shipment of solidified wastes as established in 35 IAC 729.310(c).</p> <p>Heritage suggests that the following language replace the current language in Section III.C.6.:</p> <p style="padding-left: 40px;">"All hazardous waste sent off site for land disposal in the State of Illinois shall possess a load bearing capacity of 2.0 tons per square foot as described in 35 IAC 729.321(b)."</p>
<p>Section VI.A.13 and Section VI.A.16., Page VI-3 of VI-13, Page 69</p> <p>Clarification regarding fume hoods at the facility</p>	<p>Heritage requests that the language regarding fume hoods be expanded to encompass the fabricated vacuum devices for labpacks in use at the facility. Heritage requests that Sections VI.A.13 and 16 be combined into one condition as follows:</p> <p style="padding-left: 40px;">"13. The opening and consolidation of lab packs shall be conducted within the confines of an operating fume hood or functionally-equivalent vacuum device."</p>
<p>Section VI.B.2, Page VI-5 of VI-13, Page 71</p> <p>Clarification of rebuttal procedures</p>	<p>Heritage requests to clarify that generator-supplied knowledge or information (i.e. MSDS) is a permissible substitute for full-scale GC/MS analyses in supporting the rebuttable presumption. Heritage requests the following language for the fifth sentence of the second paragraph of Section VI.B.2:</p> <p style="padding-left: 40px;">At a minimum, the rebuttal shall include (1) the concentrations of halogenated solvents as determined by GC/MS Test Methods (i.e., SW-846 method 8240), or (2) if available, material safety data sheets for the waste.</p>

**LIST OF CLARIFICATION ITEMS AND CORRECTIONS
FINAL RCRA HAZARDOUS WASTE MANAGEMENT PERMIT
HERITAGE ENVIRONMENTAL SERVICES, INC.
LEMONT, ILLINOIS
DLPC 0311620007
ILD 085 349 264**

ITEM DESCRIPTION	CLARIFICATION OR CORRECTION
<p>Section VI.B.9; Page VI-6 of VI-13; Page 72</p>	<p>Heritage has discussed this comment with the IEPA and the IEPA has agreed to revise the section to allow Heritage to maintain documentation in the operating record rather than providing separate Agency submittals. Heritage suggests revised language for Section VI.B.9 as follows:</p> <p style="padding-left: 40px;">"9. All hazardous wastes accepted at this site for blending into a hazardous waste fuel to be burned for energy recovery must have a minimum heat of combustion value of 5000 Btu per pound. This requirement will be waived if Heritage documents in the facility operating record that the receiving facility has interim status or a Part B permit in accordance with 35 IAC Parts 725 or 724 respectively, or is in compliance with 35 IAC 726 Subpart H regarding boilers and industrial furnaces. Compliance with this requirement can be demonstrated through copies of relevant permit pages, agency acknowledgement letters, or certifications."</p>
<p>Section VI.E.1; Page VI-9 of VI-13, Page 75</p> <p>Clarification in Implementing the Contingency Plan</p>	<p>Heritage requests to clarify the language concerning implementation of the Contingency Plan. It is Heritage's understanding that implementation of the Contingency Plan will be performed in accordance with the most recent version of the plan until a revised Contingency Plan is approved that addresses the issues described in Section VI.E.3. Heritage requests the following revised language for Item 1:</p> <p style="padding-left: 40px;">"1. The Permittees shall implement the approved contingency plan any time there is a (1) release of hazardous waste, (2) fire or explosion which involves hazardous waste or which occurs in areas where hazardous waste is treated, stored or disposed."</p>



P.O. Box 337
Lemont, IL 60439
Phone: 708/739-1151
Fax: 708/739-9491

TO: Interested Parties as identified on the "Facility Mailing List" maintained by the Illinois Division of Land Pollution Control

SUBJECT: Heritage Environmental Services, Inc.
EPA ID No. ILD085349264
Class 1 Permit Revisions

DATE: July 22, 1993

Heritage Environmental Services, Inc. (Heritage) owns and operates a fully permitted multi-operational facility for storage, treatment, and recycling of industrial waste. In a letter dated July 22, 1993, Heritage submitted a Class 1 Permit Modification to the Division of Land Pollution Control (DLPC) to revise certain sections of our Part B permit. These revisions covered the following items: typographical errors, storage volume clarifications, consistent permit language, in-state treatment residual disposal, fume hood designs, used oil, third party facility permits, and the contingency plan.

Class 1 permit modifications are minor modifications that do not require formal approval from the DLPC. The revisions described above have already been discussed with the DLPC prior to submission of the written request. This information is available for public review from the DLPC.

Should you have questions please contact Bob Garcia at 708/739-1151.



REVISED NOTIFICATION LIST FOR BOL/PERMIT APPLICATION LPC-PA16

MARCH 8, 1993

SITE #: 0311620007 COUNTY: COOK
FACILITY: HERITAGE ENVIRONMENTAL SERVICE CITY: LEMONT
OLD FACILITY NAME: PETROCHEM SERVICES, INC.

SENATOR: HONORABLE WILLIAM F. MAHAR, JR.
ADDRESS: 14700 RAVINIA
CITY,STATE,ZIP: ORLAND PARK, IL 60462

REPRESENTATIVE: HONORABLE LARRY WENNLUND
ADDRESS: 1234 NORTH CEDAR ROAD
CITY,STATE,ZIP: NEW LENOX, IL 60451

CO. BOARD CHAIRMAN: RICHARD J. PHELAN
ADDRESS: COUNTY BUILDING, 118 NORTH CLARK STREET, ROOM 434
CITY,STATE,ZIP: CHICAGO, IL 60602

STATES ATTORNEY: JOHN W. O'MALLEY
ADDRESS: COUNTY BUILDING, 118 NORTH CLARK STREET, ROOM 434
CITY,STATE,ZIP: CHICAGO, IL 60602

OTHERS: CECIL LUE-HING, D.SC., P.E., DIRECTOR, RESEARCH & DEVELOPMENT
ADDRESS: METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO
CITY,STATE,ZIP: 100 EAST ERIE STREET, CHICAGO, IL 60611

OTHERS:

OTHERS: CLERK OF EACH MUNICIPALITY, ANY PORTION OF WHICH IS WITHIN 3
MILES OF THE BOUNDARY OF THE FACILITY. REFER TO ITEM 1, PART
d. OF THE INSTRUCTION SHEET.

COMMENTS:
